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PUBLICATION 270

BOTANICAL SERIES VOL. VII, No. 1

THE RUBIACEAE OF COLOMBIA

BY PAUL C. STANDLEY
Associate Curator of the Herbarium, Department of Botany

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THE RUBIACEAE OF COLOMBIA

PAUL C. STANDLEY

The family Rubiaceae is an essentially tropical group. Although in America it is represented in the North Temperate Zone by a substantial number of species, these belong to only a few genera, and chiefly to *Galium* and *Houstonia*. The temperate Rubiaceae are mostly herbs, but those of the tropics are preponderantly shrubs, or occasionally large trees. The shrubs, particularly those belonging to the genera *Palicourea* and *Psychotria*, often form a conspicuous part of the undergrowth in the primeval forests, from southern Mexico southward through Brazil, and along the Andes as far as southern Peru.

In America it is in the vicinity of the equator, probably, that the family is most lavishly represented, but in Central America, especially in the mountains of Costa Rica and Panama, there exist many species. The genus *Psychotria* is well represented there, but it is worthy of note that the vast genus *Palicourea*, so profusely represented in the Andes, has but few Central American species.

There has been published an adequate account of the Rubiaceae of only one South American country—Brazil. The text of Schumann, who treated the majority of the genera in Martius' *Flora Brasiliensis*, is a model of monographic work, and his exact and lucid account of the family must command the respect and admiration of all students of the group. Mueller's treatment of the Psychotrieae, the more difficult portion of the family, it must be admitted, is sadly inferior.

In Colombia the Rubiaceae are exceptionally well represented, by a larger number of species, perhaps, than in any other American country except Brazil. This eminence may not be maintained when other regions have been explored more thoroughly, and I suspect that Colombia's present excellent showing in the Rubiaceae results largely from the extensive exploration carried on there in recent years. Nevertheless, consideration of the large number of Colombian species now known from a single collection leads to the presumption

that many additions to the present species list may be expected as exploration progresses.

Aside from their purely taxonomic interest the Colombian Rubiaceae demand attention because of their practical value. Some of the trees furnish wood of superior quality, and several yield drugs which are in demand abroad. Ipecac is the product of two or more low shrubs of the family, and from the Cinchonas, of romantic history, is obtained Peruvian bark, the source of quinine, one of nature's kindliest gifts to the world, and, above all, to dwellers in the malaria-infested tropics. For the natural product obtained from the bark of these Andean trees, now grown on so vast a scale in the distant East Indies, no satisfactory substitute has been found.

One introduced plant of the same family has become of paramount importance to Colombia. In the product of the Arabian coffee trees she finds one of the chief sources of wealth of her mountain departments.

For the preparation of the present account of the Colombian Rubiaceae the writer has been exceptionally fortunate in being able to examine practically all the material existing in American herbaria. There have been studied the collections from the following institutions, the letters in parenthesis being those used on the succeeding pages to indicate the location of the specimens cited: Field Museum of Natural History (F); United States National Herbarium (W); Gray Herbarium (G); Missouri Botanical Garden (M); New York Botanical Garden (Y); Academy of Natural Sciences of Philadelphia (P). In addition, there have been received on loan more than 700 sheets from the Royal Botanic Gardens, Kew (K), and a smaller but interesting series from the Royal Museum of Stockholm (S). To the custodians of the herbaria from which specimens were lent the writer is deeply indebted.

The collection received from Kew was of particular interest, as illustrating so characteristically the conditions existing with respect to South American material in most herbaria, in the case of families not monographed recently. Some of the specimens, if not from Colombia at least from other Andean countries, were collected more than a hundred years ago by classical collectors in these regions. Many of these relatively ancient specimens represent species described recently from collections made within the past thirty years, and others belong to species still undescribed. One wonders

whether some of our own collections will lie in the herbarium an equally long time, to be studied by botanists whose grandfathers are not yet born.

1. UNCARIA Schreb.

Uncaria tomentosa (Willd.) DC. Prodr. 4: 349. 1830. *Nauclea aculeata* HBK. Nov. Gen. & Sp. 3: 382. 1819, not Willd. 1797. *N. tomentosa* Willd. ex R. & S. Syst. Veg. 5: 221. 1819. *Ourouparia tomentosa* Schum. in Mart. Fl. Bras. 6^6: 132. 1889.

Type from the banks of the Río Magdalena near Nares, *Bonpland.* San Martín de Loba, Bolívar, *Curran 29* (W). Also in Central America, Surinam, and Trinidad.

A large scandent shrub armed with stout curved spines; leaves oval, 10-15 cm. long, obtuse-acuminate, whitish-tomentulose or glabrate beneath; flowers whitish, fragrant, in dense globose heads.

2. ALSEIS Schott

Alseis Blackiana Hemsl. Diag. Pl. Mex. 30. 1879; Biol. Centr. Amer. Bot. *pl. 37.*

San Martín de Loba, Bolívar, *Curran* in 1916 (F, W). Also in Panama.

A tree with oblanceolate or obovate-oblong, glabrate leaves 7-20 cm. long; flowers white, in long spikes; capsule oblong-turbinate, 9-12 mm. long.

3. MANETTIA L.

Manettia alba (Aubl.) Wernh. Gen. Manettia 29. 1919. *Nacibea alba* Aubl. Pl. Guian. 95. *pl. 37, f. 2.* 1775.

Santa Rosa, El Valle, alt. 200-300 m., *Killip 11562* (W, G, Y, P). Also in the Guianas.

Leaves thin, conspicuously nerved, ovate or elliptic, glabrous; calyx lobes 4, minute, triangular; corolla white, the tube about 3 mm. long; capsule glabrous, oval, 4 mm. long.

Manettia calycosa Griseb. Fl. Brit. W. Ind. 330. 1861. M. *Holtonii* Wernh. Gen. Manettia 23. 1919.

Santa Marta, 540 m., *H. H. Smith 1392* (F, W, G, M, P). La Paila, Cauca, *Holton 606* (G, P; type collection of *M. Holtonii*). Without locality, *André 869* (K, Y). Guayabetal to Monte Redondo, Cundinamarca, 1,300-1,500 m., *Pennell 1785* (Y). Líbano, Tolima, 1,100-1,300 m., *Pennell 3432* (G, Y, M). Angelopolis, *Toro 897* (Y). Titiribi, *Toro 409* (Y). Los Micos, *Toro 825* (Y). Azufral to Moral, Tolima, 1,800-2,300 m., *Killip & Kazen 9604* (W, G, Y). Cuchilla, El Valle, 1,200-1,600 m., *Pennell, Killip & Hazen 8557* (Y). Ibagué, 1,300 m., *André K558* (K). Wernham (l. c.) reports *Funck 417* from

Santa Marta and *Kalbreyer 360* and *Schlim 89* from Ocaña. The species occurs also in Haiti and Venezuela.

Leaves thick, lanceolate or lance-ovate, long-acuminate, scaberulous or puberulent or glabrate, conspicuously veined; calyx lobes 4, lanceolate or ovate, 3.5-5 mm. long, acute; corolla red, tomentulose, 1.7-2 cm. long; capsule obovoid-globose, 5-6 mm. long, tomentulose.

I can see no difference whatever between the type collection of *M. Holtonii* and other collections referred by Wernham to *M. calycosa*.

Manettia calycosa var. **latifolia** Standl. Field Mus. Bot. 4: 273. 1929.

Between Chinácota and La Esmeralda, Norte de Santander, 1,000-1,300 m., *Killip & Smith 20855* (W, type; Y).

Leaves rounded-ovate, abruptly acute-acuminate.

Manettia coccinea (Aubl.) Willd. Sp. Pl. 1: 624. 1797. *Nacibea coccinea* Aubl. Pl. Guian. 96. *pl. 37, f. 1.* 1775. *M. sanctae-martae* Wernh. Gen. Manettia 51. 1919.

Santa Marta, 300 m., *H. H. Smith 391* (F, G, M, P; type collection of *M. sanctae-martae*). Islitas, Rio Nari, *André 444* (F, K, Y). Puerto Wilches, 100 m., *Killip & Smith 14908* (W, Y). Tierra Alta on Río Sinu, Bolívar, 100-200 m., *Pennell 4639* (W, G, Y). Also in Central America, Mexico, West Indies, and the Guianas.

Plants glabrous or sparsely and minutely puberulent on the younger parts; stipules truncate or acute; leaves large, ovate, long-acuminate, rounded at the base; calyx lobes 8, linear, 5-10 mm. long, recurved; corolla red, glabrous outside, 17-20 mm. long; capsule 6-10 mm. long, subglobose.

M. sanctae-martae is a form with very narrow calyx lobes and an obscurely puberulent hypanthium. It does not seem worthy of recognition even as a variety or form.

Manettia coccocypseloides Wernh. Kew Bull. 1914: 64. 1914.

Type from Pitalito, Tolima, *Sprague 244*. Popayán, 1,600-2,000 m., *Lehmann 4760* (F, W, Y); at 1,500-2,000 m., *Lehmann 7593* (F). Without locality, *Lehmann K.134* (F). Pandi, *André 1573* (K, Y). Hills of Miraflores above Palmira, Cauca, *Pittier 877* (W). Charta, Santander, 2,000-2,600 m., *Killip & Smith 18921* (W). Northern slope of Mesa de los Santos, 1,000-1,500 m., *Killip & Smith 15395* (W). Rio Suratá Valley above Suratá, 2,000-2,300 m., *Killip & Smith 16535* (W, Y). California, Santander, 2,000 m., *Killip & Smith 17004* (W, Y). La Gallera, Micay Valley, Cauca, 1,200 m., *Killip 7825* (W). La Cumbre, El Valle, 1,600-2,100 m., *Killip 11583* (W, Y). East of Neiva, Huila, 700-1,500 m., *Rusby & Pennell 515* (W, Y); alt. 1,800-2,300 m., *Rusby & Pennell 848* (W, Y). La Palmita west of Armenia, Caldas, 1,100-1,300 m., *Pennell, Killip*

& Hazen 8623 (W, G, Y). La Cumbre, El Valle, 1,500-1,750 m., *Pennell 5180* (W, G, Y). Cuchilla, east of Zarzal, El Valle, 1,200-1,600 m., *Pennell, Killip & Hazen 8557* (W). Without locality, *Purdie* (G).

A slender scandent herb, the stems puberulent; leaves lanceolate to ovate, acuminate, puberulent; stipules small, broadly ovate; flowers white, 1 cm. long, in few-flowered cymes; calyx lobes 4, linear-oblong, 3-4 mm. long; corolla puberulent outside; capsule subglobose, sparsely puberulent or glabrate.

Manettia corticifer Wernh. Gen. Manettia 25. 1919.

Type from Pasto, *Triana 1795* in part. Río San Rafael, below Cerro Tatama, Caldas, 2,500-2,800 m., *Pennell 7533* (W, G, Y). Cerro Tatama, Caldas, 3,200-3,400 m., *Pennell 10512* (W).

Leaves coriaceous, lanceolate or ovate, 2-4 cm. long, acuminate, the lateral nerves obsolete, the margins recurved; calyx lobes 4, lanceolate, 1.5 mm. long; hypanthium glabrous; corolla white or pinkish, glabrous outside, 4 mm. long; capsule 5 mm. long.

Manettia cryptantha Standl. Field Mus. Bot. 4: 269. 1929.

Cordillera Oriental east of Neiva, Huila, 1,080-2,300 m., *Rusby & Pennell 871* (Y, type), *879*, *648*.

Stems densely and minutely puberulent; stipules broadly triangular, laciniate-denticulate; leaves ovate-elliptic or oblong-ovate, 4-6 cm. long, acuminate, obtuse or rounded at the base, sparsely short-pilose or glabrate beneath; calyx lobes 4, lanceolate or linear-lanceolate, 5-8 mm. long, acuminate; corolla white, sparsely puberulent outside, about 10 mm. long; capsule acute at the base.

Manettia echitidea Standl. Field Mus. Bot. 4: 274. 1929.

La Japa, Tolima, 1,000-1,400 m., *Lehmann 7594* (F, type; K).

Stems glabrate, when young retrorse-scaberulous; stipules rounded, laciniate-denticulate; leaf blades lance-oblong, 2.5-4.5 cm. long, acuminate, obtuse at the base, ochraceous beneath and puberulent along the costa; calyx lobes 4, triangular, 1.5 mm. long, acute, glabrate; corolla glabrous outside, 5-6.5 mm. long.

Manettia Lehmannii (Wernh.) Standl. Field Mus. Bot. 4: 269. 1929. *Neosabicea Lehmannii* Wernh. Journ. Bot. 52: 225. *pl. 533*. 1914.

Above Popayán, Cauca, 2,200 m., *Lehmann 3514* (W, K, type collection).

Leaves elliptic or ovate, acute, 3-5 cm. long, densely villous-pilose especially beneath; calyx lobes 4, lanceolate, acute, 4-5 mm. long; hypanthium densely short-villous; corolla sparsely villous, the tube about 1 cm. long.

Manettia Lindenii Sprague is reported from Colombia by Wernham (Gen. Manettia 28. 1919), but apparently in error, the specimen being really from Venezuela.

Manettia Lobbii Wernh. Gen. Manettia 26. 1919.

Type ascribed to Colombia, *Lobb 97*. It is probable that the plant is from Ecuador.

Leaves thick, elliptic, acuminate, glabrous, 3-5 cm. long, the lateral nerves obsolete, the margin revolute; calyx lobes 4, ovate-lanceolate, acute, 2 mm. long; hypanthium glabrous; corolla glabrous outside, the tube 7 mm. long, the limb 6-7 mm. broad.

Manettia meridensis Schum. in Mart. Fl. Bras. 6[6]: 178. 1889.

Las Vegas, Santander, 2,600-3,000 m., *Killip & Smith 16078* (W, Y). Wernham reports *Schlim 86* from Ocaña at 1,200 m., and *Kalbreyer 694*, collected between Ocaña and Pamplona at 1,560 m. The species occurs also in Venezuela.

Leaves thick, narrowly lanceolate to elliptic, long-acuminate, acute or obtuse at the base, glabrous above, appressed-pilose beneath along the nerves when young; calyx lobes 4, lanceolate or oblong, elongate; hypanthium white-tomentose; corolla white or pink.

The determination of *Killip & Smith* 16078 is somewhat doubtful, but the specimens agree well in most respects with the rather unsatisfactory original description.

Manettia pectinata Sprague, Bull. Herb. Boiss. II. 5: 836. 1905.

Las Nubes, Santa Marta, 1,350 m., *H. H. Smith 1665* (F, W, G, M, P, S, type collection).

Leaves ovate or elliptic-ovate, 3.5-8 cm. long, short-acuminate, rounded at the base, glabrous; calyx lobes 8, triangular, 0.5-0.8 mm. long; hypanthium glabrous; corolla white, nearly glabrous, the tube 10 mm. long, the lobes 5-6 mm. long; capsule obovoid-globose, 5 mm. long, glabrous.

Manettia pisifera Wernh. Gen. Manettia 27. 1919.

Type from La Banca, at 3,000-3,300 m., *Pearce*. The specimen probably was not collected in Colombia.

Stems pubescent; leaves thin, elliptic, acuminate, the nerves evident, hirtellous beneath along the nerves; hypanthium glabrous; calyx lobes 4, lanceolate, 2 mm. long; corolla glabrous outside, the tube 12 mm. long, the lobes 2.8 mm. long; capsule globose, 4 mm. long.

Manettia pleiodon Schum. in Mart. Fl. Bras. 6[6]: 184. 1889. *Lygistum pleiodon* Kuntze, Rev. Gen. Pl. 1: 288. 1891.

Type from Mariquita, *Karsten*.

Glabrous, the young branches minutely puberulent; stipules 2-3-dentate; leaves ovate-lanceolate, long-acuminate, acute at the

base; calyx lobes 8, subulate, reflexed; corolla 2 cm. long; capsule subglobose, 5 mm. long.

Probably this should be treated as a synonym of *M. coccinea*.

Manettia rivulorum Standl. Field Mus. Bot. 4: 273. 1929.

Dense woods along streams, Las Vegas, Santander, 2,600-3,000 m., *Killip & Smith 16058* (W, type; Y).

A scandent shrub, the young branches appressed-pilose; stipules rounded, laciniate-denticulate; leaf blades elliptic or ovate-elliptic, 4-5.5 cm. long, short-acuminate, acute or obtuse at the base, strigillose beneath especially along the nerves; calyx lobes 4, elliptic, 2-2.5 mm. long, acute, ciliolate; capsule globose-obovoid, 6-7 mm. long, acute at the base, glabrate.

Manettia sabiceoides Wernh. Gen. Manettia 30. 1919.

Type from Mariquita, Quindío, 1,950 m., *Triana 1793*.

Young stems covered with sulphur-yellow pubescence; leaves elliptic, papyraceous, short-acuminate, glabrate above, puberulent beneath on the veins, the lateral nerves 8-10 pairs; calyx lobes 4, ovate-oblong, acuminate, 3 mm. long; corolla sparsely puberulent, the tube 12 mm. long, the lobes 3 mm. long.

Manettia scaberrima Wernh. Gen. Manettia 24. 1919.

Type from Colombia, without locality, *Linden 895*. Wernham reports also *Triana 1792* from La Palmilla, Marquita, at 1,650 m.

Leaves subcoriaceous, rugose, ovate, caudate-acuminate, 2.5-4 cm. long, 1.2-2 cm. wide, rounded or cordate at the base, scaberulous above, puberulent beneath, especially on the veins; calyx lobes 4, oblong, 3-7 mm. long; corolla 12 mm. long or more, tomentulose; capsule subglobose, puberulent or glabrate.

Manettia Smithii Sprague, Bull. Herb. Boiss. II. 5: 267. 1905. *Lygistum Smithii* Robinson, Proc. Amer. Acad. 45: 405. 1910.

Type from Campo Alegre, Santa Marta, 450 m., *H. H. Smith 1393* (F, W, G, M, P, Y, type collection).

A slender vine; leaves ovate, 4-7 cm. long, short-acuminate, short-villous; cymes 1-3-flowered; calyx lobes 8, ovate, acute, 3.5-4 mm. long; corolla red, villous, the tube 16 mm. long, short-villous.

Manettia Spraguei Wernh. Gen. Manettia 39. 1919.

Type from San Martín district, Villavicencio, *Sprague*.

Glabrous; leaves elliptic, 7 cm. long, acuminate, acute at the base, with 7-8 pairs of nerves; calyx lobes 4, linear, 8 mm. long or more; corolla tube not exceeding 14 mm.; capsule subglobose.

Manettia suratensis Standl. Field Mus. Bot. 4: 274. 1929.

Type from thickets along river, Suratá, Santander, 1,700 m., *Killip & Smith 16811* (W).

Stems sparsely villous; stipules subtruncate, laciniate-denticulate; leaf blades lanceolate or ovate-lanceolate, 4.5-8 cm. long, long-acuminate, acute or decurrent at the base, sparsely whitish-pilose beneath; calyx lobes 8, linear or lance-oblong, 2-3 mm. long, acute, recurved; corolla sparsely villous, the tube green, 8 mm. long, the lobes white, 5 mm. long.

Manettia Toroi, sp. nov.—Suffrutex scandens, ramulis gracilibus, novellis sparse et minutissime pilosulis mox glabratis, vetustioribus brunnescentibus; stipulae vix 0.7 mm. longae, adpressae, late rotundatae, margine setuloso-ciliato; petiolus gracilis 4-10 mm. longus, puberulus vel glabratus; lamina membranacea, lanceolato-oblonga vel oblonga, 4-9.5 cm. longa, 1.2-3.5 cm. lata, longiacuminata, basi acuta vel obtusa, supra viridis, glabra, costa impressa, nervis fere obsoletis, subtus pallidior, ad costam gracilem elevatam sparse pilosula, aliter glabra, nervis lateralibus utroque latere c. 6 inconspicuis, nervulis obsoletis; inflorescentiae axillares pauciflorae, 1-2 cm. longe pedunculatae, pedicellis plerumque 4-8 mm. longis glabris vel sparse pilosulis; hypanthium obovoideum 2.5 mm. longum; calyx 2.5 mm. longus 4-partitus, lobis late triangulari-ovatis acuminatis erectis glabris saepe ciliolatis; corolla in alabastro 10-12 mm. longa extus glabra, 5-6 mm. longa, basi acuta; semina 2.5 mm. lata.—Colombia: Salgar, region of Medellín, July 20, 1928, *Rafael A. Toro 1266* (Herb. N. Y. Bot. Gard., type).

Manettia Trianae Wernh. Gen. Manettia 27. 1919.

Type from Pasto, *Triana 1795*, in part. Meneses, *André 2869* (K). Niebli, *André K555* (K).

Leaves somewhat fleshy, elliptic-lanceolate, acuminate, 4-6.5 cm. long, glabrous, the lateral nerves obsolete; calyx lobes 4, ovate-lanceolate, 2.5 mm. long; hypanthium glabrous; corolla purplish, glabrous outside, the tube 4.5 mm. long, the lobes 3 mm. long.

Manettia utopia Wernh. Gen. Manettia 43. 1919.

Type from Colombia, *Triana*. Laguneta to Magana, Caldas, 3,000-3,200 m., *Killip & Hazen 9472* (W, Y, P). San Antonio, Cauca, 2,400-2,700 m., *Pennell & Killip 7393* (W, G, Y).

Leaves coriaceous, lanceolate to ovate, long-acuminate, glabrous, yellowish beneath; calyx lobes 4, triangular, acute, 1.5 mm. long, fleshy; capsule obovoid, 5-6 mm. long, 3 mm. wide, glabrous.

4. CINCHONA L.

The species of *Cinchona* are the source of the drug quinine. Although several species of the genus occur in Colombia, the collection of the bark was never so important in that country as in Ecuador, Peru, and Bolivia.

The genus has always been considered a difficult one. This results from the fact that the forms have been separated and named upon almost as slight characters as the Crataegus species of the

United States. The trees were studied by men who were interested primarily in their products, which seem to vary greatly even within the species. Examination of a large amount of material in connection with a careful study of the extensive literature dealing with the taxonomy of the Cinchonas has convinced the writer that the actual number of recognizable species, according to our usual species standards, is a small one, and that most of the names must be reduced to synonymy.

Cinchona barbacoensis Karst. in Koch & Fint. Wochenschr. 2: 31. 1859; Fl. Columb. 1: 47. *pl. 23*. 1859.

Type from dense forests of the western slope of the Cordillera de Barbacoa, near San Pablo, at 100-1,000 m., *Karsten*. Río Timbiqui and Río Maya, in dense wet coastal forests, 100-600 m., *Lehmann 8628* (F, W, S, Y). Córdoba, Cauca, 30-100 m., *Pittier 517* (W). Forests of Río Timbiqui, *Lehmann B.T.415* (Y).

A tree 4-9 m. high, the branchlets appressed-pilose; stipules lanceolate, acute, pilosulous; leaves short-petiolate, oblong-elliptic to oblong-oblanceolate, 10-18 cm. long, 6-7 cm. wide, acute, attenuate to the base, glabrate above, beneath pilose, especially on the nerves, with short stiff subappressed hairs; inflorescence sessile, large, broad, the flowers congested; hypanthium sericeous; calyx glabrate, the teeth short, triangular, acute; corolla sericeous, white or pink, 1 cm. long, the 5 lobes lanceolate, obtuse, shorter than the tube; capsule linear, 5-9 cm. long, 3-5 mm. broad, glabrate.

Cinchona barbacoensis is remarkable because of the fact that it grows at a lower altitude than any other species of the genus. It is well marked by the long and very slender capsules, which often are curved.

Cinchona Henleana Karst. in Koch & Fint. Wochenschr. 2: 31. 1859; Fl. Columb. 1: 55. *pl. 27*. 1859.

In forest below Boca Antizales, Bolívar, 800-1,200 m., *Pennell 4506* (Y). Also in Venezuela.

A tree 15 m. high, the branches minutely tomentose; stipules triangular-ovate, acuminate, tomentulose, the margins revolute; leaves short-petioled, oblong-obovate or oblanceolate-oblong, 20-40 cm. long, 7-15 cm. wide, acute or acuminate, narrowed to the base, glabrous above, hirtellous or hispidulous beneath on the nerves; panicles few-flowered, the flowers sessile or nearly so; calyx 5-7 mm. long, tomentulose, truncate and obscurely denticulate; corolla pink, coriaceous, densely sericeous, the tube 2.5 cm. long, the 5 lobes oblong, obtuse, shorter than the tube; capsule oblong, densely and minutely tomentose, 3.5-4 cm. long.

Easily recognized by the very large calyx.

Cinchona officinalis L. Sp. Pl. 172. 1753. *C. lancifolia* Mutis, "Periódico de Santa Fe" 465. 1793; Humb. Ges. Naturf. Freund.

Berlin Mag. 116. 1807 (type from Andes of Bogotá, *Mutis*). *C. nitida* R. & P. Fl. Peruv. 2: 50. *pl. 191*. 1799. *C. lanceolata* R. & P. Fl. Peruv. 2: 51. 1799; 3: 1. *pl. 223*. 1802. *C. angustifolia* Ruiz, Quinol. Supl. 14. 1801. *C. Condaminea* H. & B. Pl. Aequin. 1: 33. *pl. 10*. 1808. *C. macrocalyx* DC. Bibl. Univ. 41: 150. 1829. *C. lancifolia γ angustifolia* DC. Prodr. 4: 352. 1830. *C. calisaya* Wedd. Ann. Sci. Nat. III. 10: 6. 1848. *C. amygdalifolia* Wedd., l. c. *C. Condaminea β Candollei* Wedd. Ann. Sci. III. 11: 269. 1849. *C. Condaminea δ lancifolia* Wedd., l. c. *C. lancifolia* var. *obtusata* Karst. Med. Chinar. 36. 1858. *C. lancifolia* var. *discolor* Karst. Fl. Columb. 1: 22. *pl. 12*. 1858. *C. lancifolia* var. *vera* Howard, Rept. Internat. Bot. Congr. 220. 1866. *C. lancifolia* var. *rubra* Howard, l. c. 1866. *C. lancifolia* var. *calisaya* Wedd. Ann. Sci. Nat. V. 11: 358. 1869.

Balsillas, Huila, cultivated, *Rusby & Pennell 697* (W, G). Forest above Balsillas, 2,200-2,600 m., *Rusby & Pennell 732* (F, W, G, M). Without locality, *Saenz A208* (W). Quetame, *Dawe 340* (W). Without locality, *Lehmann 8676* (Y). Fusagasugá, *Holton 437* (P, Y). Chipaqué, Potrero Grande, *Ariste-Joseph A871* (W). Eastern llanos, *Ariste-Joseph A869* (W). Ranging southward to Bolivia.

A large or medium-sized tree, sometimes 24 m. high, with a trunk 1-1.5 m. in diameter, the bark rugose, fuscous, the branchlets strigillose-pilosulous; stipules free, lanceolate or oblong, acute or obtuse, glabrous, deciduous; leaves petiolate, lanceolate to elliptic or ovate, small, acute, acuminate, or obtuse, at base attentuate to rounded, subcoriaceous, glabrous above, beneath glabrous or puberulent or hispidulous, especially on the nerves, usually about 10 cm. long and 3.5-4 cm. wide, often scrobiculate beneath; inflorescence terminal, leafy, cymose-paniculate, dense, many-flowered; hypanthium strigose; calyx glabrous or nearly so, reddish, the teeth triangular, acute; corolla pink or red, sericeous, the tube about 1 cm. long, the 5 lobes ovate, acute; capsule oblong, striate-costate, usually 1.5-2 cm. long, glabrate.

"Caquetá," "quina tunita," "quina," "quina anaranjada," "tunita," "red Cartagena bark."

Like most other species of *Cinchona*, this is a highly variable plant, and the forms have been described under a large number of names. The bark is or has been in some parts of the range of the species an important source of quinine.

Cinchona pitayensis Wedd. Ann. Sci. Nat. III. 11: 269. 1849. *C. lanceolata* Benth. Pl. Hartw. 190. 1845, not R. & P. *C. Condaminea ε pitayensis* Wedd., l. c. 1849. *C. corymbosa* Karst. Fl. Columb. 1: 19. *pl. 10*, 1858. *C. Trianae* Karst. Fl. Columb. 1: 45. *pl. 22*. 1859. *C. pitayensis α colorata* Wedd. Ann. Sci. Nat. V. 11: 359. 1869. *C. pitayensis β Trianae* Wedd., l. c. 1869. *C. pitayensis δ almaguerensis* Wedd., l. c. 1869. *C. pitayensis γ pallida* Wedd., l. c. 1869.

Type from the forests of Pitayo, near Popayán, *Hartweg 1047*. Type of *C. corymbosa* from the volcanoes of Cumbal and Chile, at

2,500-3,500 m., *Karsten*. Type of *C. Trianae* from the forests of Volcán Puracé, near Popayán, at 2,500 m. Eastern Cordillera, *Ariste-Joseph A888* (W).

A large tree, sometimes 30 m. high, with a trunk a meter thick, the bark corky, brown; stipules free, lanceolate, acute, glabrous; leaves petiolate, elliptic to lance-oblong, 6-11 cm. long, 3-5 cm. wide, acute at base and apex, coriaceous, glabrous, scrobiculate beneath in the axils of the nerves; inflorescence terminal, short, dense, few-flowered; hypanthium pilosulous or glabrate; calyx lobes 5, lanceolate or linear-lanceolate; corolla pink, sericeous, the tube 1 cm. long, the lobes short, ovate, villous within; capsule ellipsoid, glabrate, 2.5 cm. long, 1 cm. broad.

Karsten states that the bark was exported as "China de Pitayo." Hartweg reports the name as "quina roja de Pitayo."

Cinchona pubescens Vahl, Skrivt. Naturh. Selsk, 1: 19. 1790. *C. purpurea* R. & P. Fl. Peruv. 2: 52. *pl. 193*. 1799. *C. ovata* R. & P. Fl. Peruv. 2: 52. *pl. 195*. 1799. *C. cordifolia* Mutis ex Humb. Ges. Naturf. Freund. Berlin Mag. 1: 117. 1807 (type from Colombia). *C. pubescens α cordata* DC. Prodr. 4: 353. 1830. *C. rugosa* Pavón ex DC., l. c., as syn. 1830. *C. cordifolia α vera* Wedd. Ann. Sci. Nat. III. 1849. *C. succirubra* Pavón ex Klotzch, Abh. Akad. Berl. 1857: 60. 1858.

Popayán, 1,700-2,500 m., *Lehmann 3549* (F,W). Aguadas, Antioquía, 1,600-2,200 m., *Lehmann 4640* (F). La Ceja, Tolima, 2,000 m., *Lehmann 2114* (W). Without locality, *Lehmann CLXXXXV* (W), *B.T.514* (G). Hato Viejo, *Lehmann B.T.719* (Y). Forests on the Río Timbiqui, *Lehmann 8998* (Y). Cuatro Esquinas to Río Piendamo, Cauca, 1,700-1,900 m., *Pennell & Killip 6380* (W, G, P, Y). El Ramal to Río Sucio, Cauca, 2,200-2,000 m., *Pennell & Killip 8088* (W, G, P, Y). Río Palacé, Cauca, 1,600 m., *Pennell & Killip 8281* (W). Central Cordillera, *Dawe 862* (W, Y). Tacueyó, Cauca, *Pittier 1485* (W, Y). Without locality, *Purdie* (G). Balsillas, Huila, 2,200-2,600 m., *Rusby & Pennell 733* (F, W, G, M). East of Villeta, April 25, 1852, *Holton* (Y). San Antonio de Cena, *Ariste-Joseph A838* (W). Eastern llanos, *Ariste-Joseph A870* (W). Balsillas, Huila, 2,200-2,600 m., *Rusby & Pennell 788* (F, W, G, M), *805* (W, G). La Baja, Santander, 2,700 m., *Killip & Smith 18330* (W, G), *17135* (W, Y). Without locality, *Lehmann B.T.638* (Y). Ranging southward to Bolivia.

A medium-sized tree, the trunk commonly about 30 cm. in diameter, the branchlets variously pubescent; stipules free, ovate, large, obtuse or acute, caducous, sericeous or nearly glabrous; leaves petiolate, usually broadly ovate to orbicular, large, rounded to acute at the apex, at the base cordate to acute, often decurrent, usually glabrate above but often pubescent, beneath densely pilose to nearly glabrous, often scrobiculate; inflorescence terminal, paniculate, leafy, large, many-flowered, open, the flowers subsessile;

hypanthium sericeous; calyx 5-dentate, minutely sericeous or tomentulose; corolla red or pink, sericeous, the tube usually about 1 cm. long, the lobes lanceolate, 5-7 mm. long, villous within; capsule lanceolate or oblong, striate-costate, glabrate, usually 1.5-2.5 cm. long.

"Quina amarilla," "quina terciopelo," "quina calisaya."

The species as here treated is a highly variable one as regards shape and pubescence of the leaves, form of calyx lobes, and size of corolla. It seems impossible, however, at least with the information now available, to divide it into species or varieties which can be recognized with any considerable degree of accuracy. The forms of *C. pubescens* are the chief source of quinine. They vary greatly as to their quinine content.

Cinchona rosulenta Howard ex Wedd. Ann. Sci. Nat. V. 12: 66. 1869.

Type collected near Velez, Prov. Ocaña, *Purdie*.

Leaves broadly ovate or rounded-ovate, acute, attenuate to the petiole, sparsely pilose above, finally glabrate and shining, pilose beneath; panicles lax, rufous-villous-tomentose, the flowers medium-sized; calyx teeth ovate, acuminate; corolla sericeous-tomentose.

"Quina de la tierra fría." Said to be nearly indistinguishable from *C. succirubra*.

5. JOOSIA Karst.

Joosia umbellifera Karst. Fl. Columb. 1: 9. *pl. 5*. 1858.

Type from the wet hot forests on the western slope of the Andes of Bogotá, near Servitá, *Karsten* and *Triana*. Also in Peru.

A medium-sized tree; stipules linear-oblong, acute or obtuse, 1.5 cm. long; leaves short-petiolate, oblong, obovate-oblong, or oblong-lanceolate, 10-22 cm. long, 5-10 cm. wide, long-acuminate, at the base acute, glabrous above, appressed-pilose beneath on the nerves; inflorescence terminal, cymose-umbellate; calyx lobes triangular-ovate, acute; corolla white, subsericeous, 12-14 mm. long, the lobes ovate, each bearing at the apex 2 large oval petal-like appendages; capsule linear, appressed-pilose, 3.5-6.5 cm. long, 3 mm. wide.

One other species of *Joosia* occurs in Peru.

6. MACROCNEMUM L.

Macrocnemum grandiflorum Wedd. Ann. Sci. Nat. IV. 1: 76. 1854; Schum. in Mart. Fl. Bras. 6^6: 161. *pl. 101*. 1889. *Lasionema grandiflorum* Wedd. Hist. Quinquin. 98. 1849.

Type from Colombia.

A tree; leaves broadly elliptic, acute, rounded or narrowed at the base, glabrous above, glabrous beneath or puberulent in the axils of the veins, 8-15 cm. long; panicles axillary; corolla 18 mm. long, glabrous outside; calyx lobes triangular, acute.

Macrocnemum pastoense Karst. Linnaea 30: 150. 1859.

Type collected on the banks of the Mayo and Juanambu rivers, near Pasto, *Karsten*. Boca Esmeralda on Río Sinu, Bolívar, 150-300 m., *Pennell 4564* (F, G, M, W, Y). Boca Tai on Río Sinu, Bolívar, 80 m., *Pennell 4183* (Y). Without locality, *Barclay* (K). Also in Panama.

A tree; leaves obovate or oval-obovate, abruptly short-acuminate, obtuse or rounded at the base, glabrous or nearly so; corolla pink, minutely pilose outside, the tube 7-10 mm. long.

Macrocnemum polyphlebium, sp. nov.—Arbor, ramulis validis obtuse tetragonis sparse sericeis, internodiis brevibus; stipulae caducae, brunneae, lanceolato-oblongae, 1.5 cm. longae, acuminatae, sparse sericeae; petioli graciles vel crassi, 6-14 mm. longi, sericei; lamina elliptico-oblonga vel elliptica, 8-15 cm. longa, 3-6.5 cm. lata, abrupte longeque caudato-acuminata, acumine angusto c. 2 cm. longo attenuato, basi acuta vel subobtusa, papyracea, supra viridis, glabra, nervis prominulis, subtus pallidior, ad nervos dense sericeo-strigosa, aliter glabra, costa gracili elevata, nervis lateralibus utroque latere c. 15, angulo acuto latove adscendentibus, gracilibus, prominentibus, valde arcuatis, in marginem desinentibus, nervulis transversis crebris manifestis parallelis; inflorescentia terminalis sessilis vel longipedunculata, interdum e basi trichotoma, dense multiflora, cymoso-paniculata, 6-12 cm. longa, ramosa, ramulis dense cinereo-strigosis, floribus sessilibus vel usque ad 7 mm. longe pedicellatis, saepe subsecundis; hypanthium cylindricum 3-4 mm. longum strigosum; calyx 1.5 mm. longus, ad medium 5-lobus, lobis late ovato-triangularibus acutis extus strigosis; corolla alba sparse strigillosa, tubo gracili 1 cm. longo, 1.5-2 mm. lato, tereti, lobis valvatis oblongis 4.5 mm. longis acutiusculis intus glabris.—Colombia: Wet forest slope, Susumuco, southeast of Quetame, Dept. Cundinamarca, alt. 1,200-1,400 m., September 5, 1917, *Francis W. Pennell 1740* (U. S. Nat. Herb. No. 1,041,903, type; duplicates in G, Y).

The species is a well-marked one because of the character of the pubescence, and the long-acuminate leaves with numerous costae.

Macrocnemum pubescens (Benth.) Wedd. Ann. Sci. Nat. IV. 1: 76. 1854. *Lasionema pubescens* Benth. Pl. Hartw. 191. 1845.

Type from Mercaderes, between Pasto and Popayán, *Hartweg*. Popayán, 1,500-1,800 m., *Lehmann 5447* (F). Woods between Toyo

and Cañas Gordas, Antioquía, 1,600-2,200 m., *Lehmann 4741* (F, W). Dolores, Cauca, *André 2836* (Y). Without locality, *Triana 1798* (K).

A shrub or tree; leaves obovate, abruptly short-acuminate, densely pubescent beneath; corolla glabrous outside or minutely puberulent, red or pink, the tube 8 mm. long; capsule curved, 1.5-2 cm. long, glabrous.

Macrocnemum roseum (R. & P.) Wedd. Ann. Sci. Nat. IV. 1: 76. 1854. *Cinchona rosea* R. & P. Fl. Peruv. 2: 54. *pl. 199.* 1799.

Reported from Colombia by Schumann (in Mart. Fl. Bras. 6[6]: 161. 1889). Also in Peru.

A tree; leaves oblong or obovate-oblong, 6-12 cm. long, obtuse, cuneate at the base, glabrous above, puberulent beneath in the axils of the veins; inflorescence ferruginous-tomentose; corolla pink, 11-12 mm. long; capsule 1.5-2 cm. long.

Macrocnemum rotundatum Standl. Field Mus. Bot. 4: 267. 1929.

Type from Buesaco, alt. 1,800-2,100 m., *Lehmann 6303* (F; duplicate in W). East of Neiva, Huila, 1,800-2,300 m., *Rusby & Pennell 845* (W, M). Without locality, *Triana 152* (K). Antioquía, *Jervise* (K).

Branchlets glabrous; leaves petiolate, oval-obovate or obovate-oblong, 4.5-12.5 cm. long, rounded or very obtuse at the apex, usually acute at the base but sometimes obtuse or rounded, glabrous beneath or strigillose on the veins, often barbate in the axils; panicles axillary; calyx shallowly 5-dentate, the teeth acute or apiculate; corolla glabrous outside, the tube 7-8 mm. long; capsule glabrous.

"Quina cimarrona."

Macrocnemum stylocarpum Karst. Linnaea 30: 149. 1859-60.

Type collected near Bucamaranga, *Karsten.*

A tree 6 m. high; leaves petiolate, obovate-lanceolate, acute, at base rounded, submembranaceous, glabrous; stipules obovate, obtuse, deciduous; inflorescence axillary and terminal, long-pedunculate, the flowers pink, short-pedicellate; corolla glabrous; capsule terete, 2.5 cm. long, glabrous.

7. REMIJIA DC.

Remijia firmula (Mart.) Wedd. Hist. Quinquin. 93. 1849. *Cinchona firmula* Mart. Reise Bras. 3: 1286. 1831. *Ladenbergia firmula* Klotzsch in Hayne, Arzneigew. sub *pl. 15.* 1846.

Reported by Schumann (in Mart. Fl. Bras. 6[6]: 156. 1889) from San Carlos on the Río Negro, *Spruce 2954.* Also in Brazil.

Branchlets cinereous-villous; leaves petiolate, oblong, 10-25 cm. long, acute, attenuate to the base, strigillose beneath, strongly coriaceous; inflorescences large, axillary, longer than the leaves;

calyx ferruginous-tomentose, the lobes subulate, very acute; corolla 2 cm. long, the lobes equalling the tube, ferruginous-tomentose outside, linear-lanceolate; capsule pyriform, 1 cm. long.

Remijia macrophylla (Karst.) B. & H. ex Flueck. Chinarinde 16. 1883. *Cinchona macrophylla* Karst. Linnaea 30: 151. 1859-60; Fl. Columb. 1: 71. *pl. 35.* 1859.

Type from the eastern base of the Cordillera of Bogotá, *Karsten.*

A shrub or small tree 4.5 m. high, the branchlets hirsute; stipules much longer than the petioles, narrowed and acuminate from a broad base; leaves petiolate, membranaceous, opposite, ternate or quaternate, lanceolate, short-acuminate, narrowed at the base, hirtellous above, beneath pubescent, especially on the nerves, 55 cm. long and 17 cm. wide; inflorescence axillary, longer than the leaves, racemose, pubescent, the flowers subsessile; calyx lanate, short, 5-dentate; corolla 2 cm. long, sericeous, the lobes triangular, about equaling the tube; capsule pilosulous.

Remijia prismatostylis (Karst.) B. & H. ex Flueck. Chinarinde 16. 1883. *Cinchona prismatostylis* Karst. Fl. Columb. 1: 13. *pl. 7.* 1858.

Described from the wet mountain forests near Bogotá, Guanacas Pass near Popayán, and the western slope of Volcán Chile, south of Pasto, at 1,500-1,800 m., *Karsten.*

A handsome tree 15-18 m. high with oval crown, the branchlets puberulent; stipules united into a calyptriform cap, this splitting along one side; leaves petiolate, coriaceous, oval or elliptic, subcordate, strigose or glabrate above, beneath sericeous or pilosulous; inflorescence terminal, cymose-paniculate, leafy, puberulent, the flowers subsessile; calyx puberulent, denticulate; corolla tomentulose, the 5 lobes oval, acute, villosulous within; capsule oblong, subterete, 7-10 cm. long, 6-8 mm. wide.

"Cascarilla blanca," "azahar."

Remijia Purdieana Wedd. Ann. Sci. Nat. III. 11: 272. 1849.

Type from hills near Cauvas, Antioquía, *Purdie.*

Branchlets ferruginous-tomentose; stipules ovate-lanceolate, acutish, pubescent; leaves oblong, 15-30 cm. long, 7-15 cm. wide, abruptly acuminate, at base attenuate, subcoriaceous, glabrate, when young pilosulous on the nerves; panicles axillary, long-pedunculate, subcorymbose, ferruginous-tomentose, the flowers subcapitate; hypanthium pilose; calyx lobes 5, lanceolate, subfoliaceous, pubescent; corolla membranaceous, puberulent, the tube slender, 1 cm. long, the lobes linear, equaling the tube, papillose within.

Remijia Trianae Wernh. Journ. Bot. 52: 225. 1914.

Type from Villavicencio, Plain of San Martín, at 390 m., *Triana 3273/1.*

A shrub, the branches ferruginous-villous or densely tomentose; stipules ovate-lanceolate, acuminate, up to 8 cm. long and 3 cm. wide, rufous-hispidulous; leaves opposite or ternate, subcoriaceous, elliptic, up to 40 cm. long and 18 cm. wide, acuminate, narrowed at the base, glabrate above, hispidulous-villous beneath, especially on the nerves; inflorescence 35 cm. long, the flowers small; calyx lobes very short, triangular; corolla tube 8 mm. long, the lobes of the same length; fruit ovoid, 2.5 cm. long, 1.5 cm. wide, glabrate.

8. LADENBERGIA Klotzsch

Ladenbergia bogotensis (Karst.), comb. nov. *Cinchona bogotensis* Karst. in Koch & Fint. Wochenschr. 2: 30. 1859; Fl. Columb. 1: 83. *pl. 41*. 1859.

Type from forests of Susumco and Servitá, Cordillera of Bogotá, at 1,980-2,130 m., *Karsten*.

A tree 12-15 m. high, the branchlets glabrous; stipules oval, connate at the base, minutely pilose; leaves petiolate, oval or elliptic, 30 cm. long and 20 cm. wide or larger, acutish, at the base acute or narrowed, glabrous above, sparsely pilose beneath on the nerves; panicles pilosulous, few-flowered, the flowers sessile or short-pedicellate, 5-7-parted; hypanthium tomentulose; calyx glabrate, crenate or lobed, the lobes broadly triangular; corolla white, 6 cm. long, sericeous-pilose, the lobes elliptic, acutish, shorter than the tube, papillose within; capsule 15-17 cm. long, 1 cm. broad, glabrous.

"Azahar," "cascarilla roja," "requesón," "cascarilla boba."

Ladenbergia calycina (Wedd.), comb. nov. *Cascarilla calycina* Wedd. Ann. Sci. Nat. III. 10: 12. 1848.

Described from Colombia. Las Estrellas, western Andes of Popayán, 1,000-1,500 m., *Lehmann 8627* (F).

Stipules free or short-connate; leaves oblong or rounded-ovate, obtuse at each end, subcoriaceous, glabrous above, ferruginous-pilose beneath in the axils of the nerves; panicles few-flowered; calyx lobes rounded, subfoliaceous, slightly imbricate at base.

Ladenbergia heterophylla (Wedd.), comb. nov. *Cascarilla heterophylla* Wedd. Ann. Sci. Nat. III. 10: 10. 1848. *Buena heterophylla* Wedd. Journ. Linn. Soc. 11: 186. 1869.

Reported from Colombia.

Leaves rounded-ovate, obtuse or acutish, submembranaceous, often lanceolate, glabrate, or pilosulous beneath on the nerves and in their axils; stipules free or short-connate; panicles many-flowered; calyx lobes rounded-ovate, obtuse; capsule very long.

Ladenbergia Hookeriana (Wedd.), comb. nov. *Cascarilla Hookeriana* Wedd. Hist. Nat. Quinquin. 91. *pl. 24,A*. 1849. *Buena Hookeriana* Wedd. Journ. Linn. Soc. 11: 187. 1869.

Type collected near Ocaña, *Purdie*. Without locality, *Lehmann B.T.1225* (K).

Stipules free or short-connate; leaves oblong-lanceolate, acute, at the base attenuate, coriaceous, glabrate, when young pubescent-tomentose beneath; panicles many-flowered, the flowers subcapitate; calyx teeth triangular-acuminate; capsule large, arcuate.

"Quina clava."

Ladenbergia macrocarpa (Vahl) Klotzsch in Hayne, Arzneigew. 14: sub *pl. 15.* 1846. *Cinchona macrocarpa* Vahl, Skrivt. Naturh. Selsk. 1: 20. 1790; Karst. Fl. Columb. 1: 43. *pl. 21.* 1859. *Cascarilla macrocarpa* Wedd. Ann. Sci. Nat. III. 10: 13. 1848. *Buena macrocarpa* Wedd. Journ. Linn. Soc. 11: 187. 1869. *Cinchona ovalifolia* Mutis ex Humb. Ges. Naturf. Freund Berlin Mag. 1: 118. 1807. *Cinchona magniflora* Pavón ex DC. Prodr. 4: 354. 1830, as syn.

Reported by Karsten from the mountain forests of Bogotá and Antioquía, at 2,200-2,700 m. Without locality, *Ariste-Joseph A866* (W). Eastern llanos, *Ariste-Joseph B98* (W). Without locality, *Bonpland* (P). Also in Ecuador and Peru.

A tree 12-15 m. high, the branchlets ferruginous-tomentose; stipules united into a caducous cap, tomentose; leaves petiolate, oval-elliptic or broadly oval, large, coriaceous, at the base usually rounded or subcordate, glabrate above, ferruginous-tomentose beneath or glabrate; panicles terminal, few-flowered, the flowers sessile or nearly so; calyx teeth short, obtuse; corolla densely sericeous, 5.5 cm. long, the 5-6 lobes about half as long as the tube; capsule oblong-clavate, 5-8 cm. long, tomentose or glabrate.

"Quino rojo," "quina blanca," "quinquina blanca."

Ladenbergia magnifolia (R. & P.) Klotzsch in Hayne, Arzneigew. 14: sub *pl.* 15. 1846. *Cinchona magnifolia* R. & P. Fl. Peruv. 2: 53. *pl.* 196. 1799. *Cinchona grandifolia* Poir. Encycl. 6: 38. 1804. *Cinchona oblongifolia* Mutis ex Humb. Ges. Naturf. Freund. Berlin Mag. 1: 118. 1807. *Cinchona nitida* Benth. Pl. Hartw. 190. 1845, not R. & P. 1799. *Ladenbergia nitida* Klotzsch in Hayne, Arzneigew. 14: sub *pl. 15.* 1846. *Cascarilla magnifolia* Wedd. Ann. Sci. Nat. III. 10: 10. 1848. *Cascarilla nitida* Ann. Sci. Nat. III. 10: 11. 1848. *Cascarilla oblongifolia* Wedd. Ann. Sci. Nat. III. 10: 12. 1848. *Cascarilla magnifolia* α *vulgaris* Wedd. Hist. Nat. Quinq. 79. 1849. (?)*Cinchona heterocarpa* Karst. Fl. Columb. 1: 11. *pl. 6.* 1858. *C. heterocarpa* var. *bogotensis* Karst., l. c. 1858. *Buena magnifolia* Wedd. Journ. Linn. Soc. 11: 186. 1869. *B. nitida* Wedd., l. c. 1869.

Type of *Cinchona heterocarpa* from Popayán and Pasto, at 1,300-1,800 m., *Karsten;* type of *C. heterocarpa* var. *bogotensis* from Ubala and Gachala, *Triana*. Type of *Cinchona nitida* collected between Fusagasugá and Pandi, *Hartweg 1048*. El Colegio, Cundinamarca, *Dawe 44* (W.) Pacho, Cundinamarca, 1,400-2,000 m., *Lehmann 7514* (F, W, Y). Bolivia, Cauca, *Holton 436* (P, Y). Between Quilichao

and Popayán, Cauca, 1,700 m., *Lehmann 3448* (F, W). Pandi, Cundinamarca, 1,000-1,900 m., *Lehmann 2513* (W). Las Guacas, Morales, Cauca, 1,600 m., *Pennell & Killip 6294* (W, G, Y). Near Guachinte, Cauca Valley, *Dawe 817* (W, Y). East of Neiva, Huila, 1,000-1,300 m., *Rusby & Pennell 1053* (Y). Morales, Cauca, 1,700 m., *Rusby & Pennell 8319* (W). Without locality, *Purdie* (G). La Esmeralda, Cauca, 1,200 m., *Pittier 933* (W). Armenia, *Toro 1316* (Y). Ranging southward to Bolivia.

A tree with cinnamon-brown bark; stipules 2-3 cm. long, free or slightly connate at the base, acute, sericeous; leaves petiolate, elliptic, broadly elliptic, or oblong-ovate, 10-30 cm. long, 7-20 cm. wide, obtuse or acute, at the base acute or rounded, glabrous above, barbellate beneath in the axils of the veins; inflorescence paniculate, long-pedunculate; calyx lobes 4-5, triangular-ovate, acute, tomentulose; corolla white, about 1.5 cm. long, the lobes lanceolate, acute, equaling or shorter than the tube; capsule linear-oblong or lanceolate, 2.5-7 mm. long, 7-10 mm. wide, glabrate.

Called "cascarillo" in Colombia, and "cascarillo amarillo" in Peru.

Ladenbergia muzonensis (Goudot), comb. nov. *Cinchona muzonensis* Goudot, Phil. Mag. 132. 1828. *Cascarilla muzonensis* Wedd. Ann. Sci. Nat. III. 10: 11. 1848. *Henlea muzonensis* Klotzsch & Karst. ex Walp. Ann. Bot. 2: 788. 1851-52, as syn. *H. rosea* Klotzsch & Karst. ex Walp., l. c., as syn. *Buena muzonensis* Wedd. Journ. Linn. Soc. 11: 187. 1869.

Type from forests near Muzo.

Stipules free or short-connate; leaves ovate-lanceolate or elliptic-lanceolate, acuminate, attenuate at the base, submembranaceous, glabrous, the costa minutely puberulent; panicles many-flowered, the flowers subcapitate; calyx teeth very short, obtuse; corolla white; capsule straight or subarcuate, pubescent-tomentose.

Ladenbergia pedunculata (Karst.) Schum. in Mart. Fl. Bras. 6^6: 146. 1889. *Cinchona pedunculata* Karst. in Koch & Fint. Wochenschr. 2: 30. 1859; Karst. Fl. Columb. 1: 53. *pl. 36*. 1859. *Remijia pedunculata* Flueck. Chinarinde 17. *pl. 6*. 1883.

Type from the eastern slopes of the mountains of Bogotá, near Susumuco, at 1,000 m., *Karsten*. Without locality, in 1882, *Lorent* (W).

A small tree 3.5-4.5 m. high, the young branches sericeous; stipules obovate, longer than the petioles, sericeous-pilose; leaves petiolate, coriaceous, lanceolate or elliptic, 20 cm. long, acute at base and apex, when young minutely appressed-pilose, pilose beneath in the axils of the veins; inflorescence axillary, cymose, long-pedunculate, corymbiform, the branches pilosulous, the flowers subsessile; calyx lobes 5, triangular, subacute; corolla white, the tube 7-8 mm. long, the lobes lanceolate, acute, 5 mm. long; capsule lanceolate, 15-18 mm. long, 6-7 mm. wide.

Ladenbergia undata Klotzsch in Hayne, Arzneigew. 14: sub *pl. 15.* 1846. *Cascarilla undata* Wedd. Ann. Sci. Nat. III. 10: 12. 1848. *Cinchona undata* Karst. Fl. Columb. 1: 131. *pl. 65.* 1861. *Buena undata* Wedd. Journ. Linn. Soc. 11: 187. 1869.

Edge of woods, Las Vegas, Santander, 2,600-3,000 m., *Killip & Smith 15990* (W, Y). Reported by Karsten from Ocaña, at 1,500-2,000 m. Also in Venezuela.

A tree 8-12 m. high, the branches ferruginous-tomentose; stipules free or short-connate, hirsute; leaves short-petiolate, thick-coriaceous, strongly bullate, elliptic or oval, obtuse or rounded at the apex, subcordate or rounded at the base, shining and glabrate above, tomentose beneath, the margins strongly revolute; panicles corymbiform, few-flowered, brown-tomentose; calyx lobes large, ovate-oblong, mostly obtuse; corolla hirsute-sericeous, 3-3.5 cm. long, the lobes shorter than the tube; capsule oblong, 4-5 cm. long, glabrate.

9. CAPIRONA Spruce

Capirona decorticans Spruce, Journ. Linn. Soc. 3: 200. 1859. *Monadelphanthus floridus* Karst. Fl. Columb. 1: 67. *pl. 33.* 1859.

The type of *M. floridus* was collected along the Río Meta near Jiramene, at 200 m., *Karsten.* The species occurs also in Peru.

A tree 12-15 m. high; leaves oblong to broadly elliptic, obtuse or short-acuminate, 20-45 cm. long, glabrous; flowers in large terminal panicles; corolla red, 2.5-3 cm. long; one of the calyx lobes often expanded into a large red limb; capsule 2-3 cm. long.

10. SCHIZOCALYX Wedd.

Schizocalyx bracteosus Wedd. Ann. Sci. Nat. IV. 1: 74. 1854.

Type from banks of the Río Mayo, *Goudot.*

Leaves ovate-oblong, 7-18 cm. long, 5-8 cm. wide, short-acuminate, acute at the base, glabrate above, puberulent beneath; panicle shorter than the leaves; flowers short-pediceled, the bracts foliaceous, ovate; corolla 8 mm. long.

Schizocalyx hirsutus Standl. Field Mus. Bot. 4: 264. 1929.

Type collected between Nariño and El Tambor, Santander, in thickets along trail, at 150-300 m., *Killip & Smith 14959* (W).

A tree, the branchlets hirsute; leaves oblanceolate-oblong, 14-24 cm. long, abruptly acuminate, narrowed to the base, sparsely hirsute above, hirsute beneath with stiff spreading hairs; panicles large, many-flowered, the flowers pedicellate; hypanthium obconic, 3 mm. long; calyx closed in bud, bilobate in flower, one of the lobes sometimes expanded into a large white limb 2 cm. long; corolla glabrous outside, the tube 8 mm. long.

11. CALYCOPHYLLUM DC.

Calycophyllum candidissimum (Vahl) DC. Prodr. 4: 367. 1830. *Macrocnemum candidissimum* Vahl, Symb. 2: 38. 1791.

Santa Marta, *H. H. Smith 414* (F, W, P). Widely distributed in tropical America.

A medium-sized tree; leaves ovate to rounded-oval, abruptly acuminate, 5-12 cm. long, nearly glabrous; flowers small, white, in terminal corymbose panicles; calyces partly with one large foliaceous petioled white lobe; fruit a cylindric capsule 6-10 mm. long.

In Panama the tree is called "alazano," "harino," "salamo," "madroño," and "guayabo alazano." The wood is heavy, strong, and very fine-grained. It is employed in Central America for making combs, and burned for charcoal. The tree is an exceptionally beautiful one when in flower, because of the abundance of long-persisting, white or cream-colored calyx lobes, which give it the appearance of a huge bouquet.

12. FERDINANDUSA Pohl

Ferdinandusa dissimiliflora (Mutis), comb. nov. *Cinchona dissimiliflora* Mutis ex Humb. Ges. Naturf. Freund. Berlin Mag. 1: 120. 1807. *Ladenbergia dissimiliflora* Klotzsch in Hayne, Arzneigew. 14: sub *pl. 15*. 1846. *Gomphosia Goudotiana* Wedd. Ann. Sci. Nat. III. 10: 14. 1848.

Described from Colombia.

Leaves oblong-lanceolate, acuminate, at the base rounded or subcordate, glabrous above, beneath more or less villous on the nerves; calyx 5-dentate, the teeth acuminate; capsule lanceolate.

Ferdinandusa guainiae Spruce ex Schum. in Mart. Fl. Bras. 6^6: 208. 1889.

Reported by Schumann from the Río Negro above the mouth of the Río Casiquiare, *Spruce 3510*. Also in Brazil.

Leaves oblong or obovate-oblong, 5-8 cm. long, subobtuse, acute or rounded at the base, glabrous on both surfaces; calyx obscurely 5-7-denticulate, glabrous; corolla about 4 cm. long, glabrous, the lobes one-fifth as long as the tube; capsule linear-oblong, glabrous, 3.5-4.5 cm. long.

13. HILLIA Jacq.

Hillia macromeris, sp. nov.—Ramuli validi, glabri; stipulae caducae, non visae; folia opposita, petiolo crasso 12-16 mm. longo; lamina coriacea, oblongo-elliptica, 11-15 cm. longa, 5.5-7 cm. lata, abrupte acuminata, acumine anguste triangulari 1-1.5 cm. longo attenuato subobtuso, basi obtusa vel acuta, glabra, supra fusco-viridis, costa prominente, nervis subimpressis, subtus pallidior et brunnescens, costa gracili elevata, nervis lateralibus utroque latere c. 7, gracilibus, prominentibus, angulo acutissimo adscendentibus, subarcuatis, juxta marginem conjunctis, margine revoluto; flores

terminales, sessiles; hypanthium oblongo-turbinatum 7 mm. longum glabrum, calyce non viso; corolla extus glabra, tubo gracili 14 cm. longo 4 mm. crasso superne vix dilatato, lobis 5 linearibus c. 10 cm. longis et 5 mm. latis, longe sensimque attenuatis.—Colombia: Forests of Santa María on Río Timbiqui, September, 1903, *F. C. Lehmann B.T.416* (Herb. N. Y. Bot. Gard., type).

The material available consists of a very short branch with attached leaves, a few detached leaves, and a single flower. From *H. parasitica* Jacq. the present plant differs in the much larger flowers, noteworthy for their very long and narrow corolla lobes, and in the conspicuously elevated nerves of the leaves.

Hillia parasitica Jacq. Enum. Pl. Carib. 18. 1760.

Santa Marta, 1350 m., *H. H. Smith 1654* (F, W, G, M, P, Y). La Cumbre, El Valle, 1,800-2,100 m., *Pennell 5898* (W). Cordillera Oriental east of Neiva, Huila, 1,800-2,300 m., *Rusby & Pennell 863* (Y). La Obrel, *Kalbreyer 884* (K). Without locality, *Lehmann K.119* (K). Widely distributed in tropical America.

A glabrous epiphytic shrub, sometimes scandent and 7.5 m. long; leaves petioled, mostly elliptic, 6-14 cm. long, cuspidate-acuminate; flowers terminal, solitary, sessile; calyx 6-parted or absent; corolla white, the slender tube 6-10 cm. long.

14. COSMIBUENA R. & P.

Cosmibuena gardenioides Wernh. Journ. Bot. 51: 321. 1913.

Type from Cauca, at 1,460 m., *Lehmann 1955*.

Leaves elliptic, 11 cm. long, rounded at the base and apex; calyx 3-3.5 mm. long; corolla tube 4 cm. long.

Cosmibuena grandiflora (R. & P.) Rusby, Bull. N. Y. Bot. Gard. 4: 368. 1907. *Cinchona grandiflora* R. & P. Fl. Peruv. 2: 54. *pl. 198*. 1799. *C. obtusifolia* R. & P. Fl. Peruv. 3: 3. *pl. 198*. 1802. *Buena latifolia* Benth. Pl. Hartw. 191. 1845. *C. latifolia* Klotzsch ex Walp. Repert. Bot. 6: 69. 1846. *C. arborea* Standl. Contr. U. S. Nat. Herb. 17: 447. 1914.

Río Suratá Valley, Santander, 1,500-1,800 m., *Killip & Smith 16424* (W, Y). Espejuelo, Cauca, 1,000 m., *Pittier 985* (W; type of *C. arborea*). Between Piedras and Ibagué, 1,100 m., *André 1976* (Y). La Paila, *Holton 438* (Y, P), *439* (G). Teta, *Lehmann B.T.355* (K, Y). Estuary of the Yurumagui and Maya, *Lehmann 8873* (Y). [illegible]li, Cauca, 1,000-1,300 m., *Lehmann B.T.1171* (Y). Without locality, *Triana 1818* (K). Santa Marta, November, 1844, *Purdie* (K). Without locality, *Bruchmuller* (K). The type of *B. latifolia* was collected between Villeta and Guaduas. The species occurs also in Peru and Bolivia.

A glabrous tree 5-12 m. high; leaves petioled, elliptic, oval, or oblong-elliptic, rounded or very obtuse at the apex; calyx about 1 cm. long; corolla white or ochroleucous, the tube 5-9 cm. long.

It is doubtful whether the other species listed here are distinct from *C. grandiflora*. I have not seen type material of them, and the descriptions do not mention any characters which seem very important. The corolla evidently exhibits great variation in length.

Cinchona grandiflora was described from Peru, but Ruiz and Pavón cite also specimens from Colombia, collected near Quebrada Larga by Sebastián José López Ruiz. They give the vernacular names as "mestiza," "azuceno," "capecape," "capecito," and "cape negro." Lehmann reports the vernacular name as "narciso."

Cosmibuena macrocarpa (Benth.) Klotzsch ex Walp. Repert. Bot. 6: 69. 1846. *Buena macrocarpa* Benth. Bot. Voy. Sulph. 104. *pl. 38*. 1844. *C. gorgonensis* Wernh. Journ. Bot. 51: 321. 1913.

Type from Gorgona Island. Type of *C. gorgonensis* also from the same island, *Barclay 919*.

A glabrous tree; leaves oval-elliptic, obtuse, cuneate at the base, 7.5-10 cm. long; calyx 3 mm. long; corolla whitish, the tube 5 cm. long; capsule 7.5-10 cm. long.

Both species names are based on material from the same island, and the distinguishing characters given for *C. gorgonensis* do not seem to be of specific importance, in consideration of the variation in material referred to *C. grandiflora*.

15. COUTAREA Aubl.

Coutarea hexandra (Jacq.) Schum. in Mart. Fl. Bras. 6^6: 196. 1889. *Portlandia hexandra* Jacq. Sel. Stirp. 63. *pl. 182, f. 20*. 1763. *C. speciosa* Aubl. Pl. Guian. 314. *pl. 122*. 1775. *C. Scherffiana* André, Ill. Hort. 25: 120. *pl. 321*. 1878.

Cartagena, *Bro. Heriberto 101* (W). Barranquilla, *Bro. Paul 24* (W). Santa Marta, *H. H. Smith 349* (F, W, P). Villavicencio, 450 m., *Pennell 1401* (W). Buenavista, east of Since, *Pennell 4008* (W). Turbaco, *Bro. Heriberto 486* (W); *Killip & Smith 14198* (W, Y). Usiacuri, 250 m., *Bro. Elias 279* (W). Type from Cartagena. Type of *C. Scherffiana* from Pasto, *André*. Widely distributed in tropical America.

A shrub or small tree, glabrous or sparsely pubescent; leaves short-petiolate, oblong to broadly ovate or elliptic, short-acuminate, glabrous or nearly so; flowers terminal, usually in clusters of 2-3; calyx lobes 6, linear; corolla asymmetric, white to purplish, 4-5 cm. long, glabrous or puberulent; capsule about 3.5 cm. long.

The vernacular name "madiagola" is reported from Turbaco.

Coutarea hexandra var. **pubescens** (Pohl) Schum. in Mart. Fl. Bras. 6[6]: 198. 1889. *C. pubescens* Pohl, Pl. Bras. Icon. 2: 148. *pl. 200.* 1831.

Río Cabrera, Tolima, 1,400 m., *Lehmann 2366* (W). Río Cabrera to Villavieja, Huila, 500 m., *Rusby & Pennell 370* (W, Y). Without locality, *Lehmann 8651* (G). Guaduas to Villita, 1,500 m., *André 675* (K). Cauca, *André 2923* (W, Y). North of Arjona, Bolivar, 30-50 m., *Killip & Smith 14553* (Y). Widely distributed in South America.

Sometimes a tree of 10-12 m.; like the typical form except that the leaves and flowers are densely pubescent.

Coutarea Lindeniana Baill. Adansonia 12: 300. 1879.

Ocaña, in savannas, 1,200 m., *Schlim 696* (K). Espíritu Santo, Ocaña, *Purdie* (K). Also in Venezuela.

A small tree; leaves elliptic or oblong-elliptic, petiolate, acuminate, glabrous or sometimes velvety-pubescent beneath; cymes dense, many-flowered; calyx lobes elongate, linear-subulate; corolla white, tinged with pink outside, 2.5-3.5 cm. long.

16. HENRIQUEZIA Spruce

Henriquezia oblonga Spruce ex Benth. Trans. Linn. Soc. 22: 297. 1859.

Type from the banks of the Río Atabapo near the mouth of the Río Casiquiari, *Spruce 3702.*

A small tree 6 m. high; leaves petiolate, elongate-oblong or subovate-oblong, obtuse or acutish, 12-14 cm. long, 4-4.5 cm. wide, glabrous, shining above, paler and dull beneath; capsule suborbicular, 7-8 cm. in diameter.

17. POGONOPUS Klotzsch

Pogonopus speciosus (Jacq.) Schum. in Mart. Fl. Bras. 6[6]: 265. 1889. *Macrocnemum speciosum* Jacq. Hort. Schoenbr. 1: 19. 1797. *Howardia grandiflora* Wedd. Ann. Sci. Nat. IV. 1: 70. 1854.

Santa Marta, 45 m., *H. H. Smith 100* (F, W, P). Río Frío, Santa Marta, *Walker 1277* (F, W). Armenia, *Toro 540* (Y). Also in Venezuela and Central America.

A large shrub or small tree; leaves short-petioled, obovate or oval-obovate, 10-20 cm. long, abruptly acuminate, thin, sparsely or densely puberulent beneath; cymes forming a terminal panicle; one calyx lobe of some of the flowers expanded into a red rounded-ovate limb 1-5 cm. long; capsule 5-7 mm. long.

Pogonopus tubulosus (DC.) Schum. in Mart. Fl. Bras. 6[6]: 265. 1889. *Calycophyllum tubulosum* DC. Prodr. 4: 367. 1830.

Río Sucio to Dabeiba, *Lehmann 7459* (K). Ranging to Brazil, Argentina, and Bolivia.

A tree 10-15 m. high; leaves short-petioled, ovate, obovate, or elliptic, short-acuminate, densely pubescent or glabrate; cymes forming terminal panicles; one of the calyx lobes in some flowers expanded into a red ovate limb 7-10 cm. long; corolla about 3.5 cm. long, the 5 lobes very short; capsule 7-9 mm. long, compressed-globose, rounded at the base, glabrous, 7 mm. long.

18. CONDAMINEA DC.

Condaminea corymbosa (R. & P.) DC. Prodr. 4: 402. 1830. *Macrocnemum corymbosum* R. & P. Fl. Peruv. 2: 48. *pl. 189*. 1799.

Río Coello, Tolima, 1,000-1,500 m., *Killip 9735* (W). Calinia, El Valle, *Killip 11199* (W). Titiribí, *Toro 421* (Y). Ibagué, 1,300 m., *André 1955* (Y). Reported from Mariquita and Santa Ana, *Bonpland* (HBK. Nov. Gen. & Sp. 3: 299. 1830). Also in Peru, the type region, and Panama.

A shrub or small tree with very large, oblong or obovate, nearly sessile, usually clasping, glabrous leaves; inflorescence terminal, long-pedunculate, as long as the leaves; calyx 8 mm. long, truncate or irregularly dentate; corolla glabrous, 2.5 cm. long; capsule bisulcate, about 17 mm. long.

19. RUSTIA Klotzsch

Rustia rosea (Klotzsch & Karst.) Schum. in E. & P. Nat. Pflanzenfam. 4[4]: 18. 1891. *Henlea rosea* Klotzsch & Karst. ex Walp. Ann. Bot. 2: 788. 1851-52, as syn.

This is listed by Schumann (l. c.) as a valid species of *Rustia*, but it has not been described, so far as I know. The name is listed by Walpers merely as a synonym of *Cascarilla muzonensis*.

Rustia occidentalis (Benth.) Hemsl. Biol. Centr. Amer. Bot. 2: 14. 1881. *Exostema occidentale* Benth. Bot. Voy. Sulph. 104. 1844.

Type from Gorgona Island. Buenaventura, El Valle, in coastal thickets, *Killip 11707* (W, Y). Also in Central America.

A glabrous tree; leaves oblanceolate, 10-30 cm. long, long-acuminate, attenuate to the base; flowers in narrow few-flowered panicles; corolla salverform, the tube 6-7 mm. long; capsule obovoid, 10-14 mm. long.

Rustia splendens (Karst.), comb. nov. *Henlea splendens* Karst. Fl. Columb. 1: 157. *pl. 78*. 1861.

Type from Jiramene, *Karsten*. Without locality, *Purdie* (G).

A nearly glabrous tree up to 9 m. high; leaves short-petiolate, obovate-oblong or obovate, 20-35 cm. long, abruptly short-acuminate; flowers in a large terminal panicle; calyx cupular, truncate or obscurely denticulate; corolla 2.5 cm. long, the lobes very short.

20. WARSCEWICZIA Klotzsch

Warscewiczia coccinea (Vahl) Klotzsch, Monatsb. Akad. Berlin 1853: 497. 1853. *Macrocnemum coccineum* Vahl, Symb. Bot. 2: 38. 1791.

Susumuco, 1,240 m., *André 1008* (Y). Río Dagua, Buenaventura, *Lehmann 5804* (F). Between Chinácota and La Esmeralda, Norte de Santander, 1,000-1,300 m., *Killip & Smith 20900* (W). Upper Río Lebrija Valley, Santander, 400-700 m., *Killip & Smith 16272* (W). Between Nariño and El Tambor, 150-300 m., *Killip & Smith 14968* (W). Occurring also in Panama, and widely distributed in South America.

A shrub or small tree; leaves petioled, obovate or obovate-oblong, 15-60 cm. long, acute or short-acuminate, pubescent or glabrate beneath; cymes forming a long narrow inflorescence; one of the calyx lobes in some of the flowers expanded into an oblong or elliptic limb 3.5-7 cm. long; corolla yellow.

Warscewiczia peltata Wedd. Ann. Sci. Nat. IV. 1: 73. 1854.

Type collected in Colombia by Goudot.

A tree 8 m. high; leaves ovate-oblong, short-acuminate, peltate, 25-40 cm. long, pubescent beneath; cymes arranged in a raceme 50 cm. long; expanded calyx lobe elliptic-lanceolate, 5-7 cm. long.

21. SICKINGIA Willd.

Sickingia cordifolia Hook. f. in B. & H. Gen. Pl. 2: 34. 1873. *Flexanthera subcordata* Rusby, Mem. N. Y. Bot. Gard. 7: 368. *f. 6.* 1927.

Santa Marta, *Purdie* (photo. and fragment of type from Herb. Kew., F; dupl. in G). East of Bonda, *H. H. Smith 2404* (F, M, P, type collection of *F. subcordata*). Santa Marta, *H. H. Smith 92* (F, M, P).

A tree 12 m. high; leaves short-petiolate, ovate or oblong-ovate, 10-25 cm. long, acuminate, at the base rounded or cordate, glabrous; flowers in small, short-pedunculate, dense panicles shorter than the leaves; calyx lobes rounded; corolla 6 mm. long, the lobes very short, ovate-triangular; stamens exserted; capsule 1.5 cm. long or larger.

Sickingia Goudotii (Baill.), comb. nov. *Chimarrhis Goudotii* Baill. Adansonia 12: 307. 1879.

Described from Quindío and Tolima, *Goudot.*

Leaves acuminate, at the base long-attenuate, finely tomentose beneath; panicles terminal, 25 cm. long; corolla lobes short; stamens exserted.

Sickingia myriantha, sp. nov.—Arbor 12-15-metralis, ramulis subteretibus vel obtuse tetragonis brunnescentibus glabris, inter-

nodiis brevibus vel elongatis; stipulae in tubum 2-4 mm. longum subtruncatum vel brevissime bilobum connatae, glabrae; folia opposita, petiolo 1-3 cm. longo glabro gracili; lamina obovata, obovato-oblonga vel rarius oblongo-elliptica, 8-20 cm. longa, 3.5-8.5 cm. lata, abrupte breviterque acuminata, rarius acuta vel sensim acuminata, basin versus attenuata vel acuta, crasse membranacea vel subcoriacea, fere concolor, subtus in axillis nervorum primariorum dense breviterque barbata, aliter glabra, costa nervisque supra non elevatis, subtus prominentibus, costa gracili, nervis lateralibus utroque latere c. 12, gracilibus, angulo lato adscendentibus, parallelis, levissime curvatis, prope marginem arcuato-conjunctis, nervulis obscuris; inflorescentia terminalis, cymoso-paniculata, 9-20 cm. longa et lata, ramosa, breviter vel longe pedunculata, ramulis minute sparseque puberulis, bracteis anguste triangularibus acutis 1-3 mm. longis, floribus sessilibus; hypanthium 1 mm. longum glabrum; calyx 0.5 mm. longus obsolete remoteque denticulatus, dentibus latissimis rotundatis; corolla alba, extus glabra, tubuloso-campanulata, 4 mm. longa, 3.5 mm. lata, lobis 5 late triangularibus obtusis c. 0.6 mm. longis, tubo intus paullo supra basin ad insertionem staminum barbato; filamenta ad basin pilosa, superne glabra, antheris exsertis glabris oblongis 1.5 mm. longis.—Colombia: Las Nubes road, region of Santa Marta, alt. 1,200 m., December 3, 1898, *H. H. Smith 1810* (Herb. Field Mus. No. 138,660, type; duplicates in W, Y). La Cumbre, El Valle, 1,550-1,700 m., *Pennell 5028* (W, Y), *5859* (W, Y). Without locality, *Lehmann 7692* (K, W). Highlands of Popayán, 1,700-2,000 m., *Lehmann 5535* (F, K, S, W). Popayán, 1,700 m., *Lehmann 2799* (K, W). Tolima, *Goudot* (K). Paniquitá, *Lehmann B.T.1112* (Y).

22. RONDELETIA L.

Rondeletia brevipes Benth. Pl. Hartw. 191. 1845.

Type from Guaduas, Prov. Bogotá, *Hartweg 1050*.

Petioles scarcely 2 mm. long; stipules linear, longer than the petiole; leaf blades oval-elliptic or oblong-elliptic, obtuse, soft-pubescent beneath; flowers 5-parted, cymose-paniculate, the panicles leafy; corolla tube 4 mm. long, tomentose; seeds appendaged at each end.

According to the description, this seems to be closely related to *R. pubescens* HBK.

Rondeletia colombiana Rusby, Descr. N. Sp. S. Amer. Pl. 129. 1920. *R. ovata* Rusby, l. c.

Sierra de Onaca, 1,500 m., *H. H. Smith 1813* (Y, type; F, W, M, S, P). Las Nubes, 1,350 m., *H. H. Smith 1813* (Y, type of *R. ovata*). Growing in forest or thickets.

A small tree 4.5-6 m. high; stipules lance-subulate or ovate-acuminate, about 1 cm. long; petioles 1-2.5 cm. long; leaf blades elliptic or ovate, 10-20 cm. long, acuminate, sparsely or densely

appressed-pilose; flowers 4-parted, in loose panicles; calyx lobes linear or lance-linear, 3-5 mm. long; hypanthium appressed-pilose; corolla pink, the tube 12 mm. long, very sparsely tomentose.

With regard to *R. colombiana* and *R. ovata*, their author makes the statement that "the two species are, however, obviously distinct, though closely related." The present writer is unable to find any tangible difference between the two type specimens, which were considered by their collector to represent the same plant.

Rondeletia cupreiflora Schum. & Krause, Bot. Jahrb. Engler 40: 314. 1908.

Thickets near Antioquía, 1,700-2,000 m., *Lehmann 7289* (F, Y, type collection). Also in Ecuador.

A shrub or small tree 5 m. high; stipules triangular, acute, 5-6 mm. long; leaf blades oblong, 7-14 cm. long, 2.5-5.5 cm. wide, acuminate, at the base acute, sparsely pilose beneath; flowers 4-parted, in corymbiform panicles; hypanthium subtomentose; calyx lobes lance-subulate, nearly equaling the hypanthium; corolla copper-red, 20-30 mm. long, puberulent.

Rondeletia discolor HBK. Nov. Gen. & Sp. 3: 396. 1820.

Type collected between Mariquita and Honda, *Bonpland.*

A shrub, the branches glabrous; stipules linear-subulate, glabrous; petioles 4-6 mm. long; leaf blades ovate-oblong, 5 cm. long, acuminate, glabrous above, white-tomentose beneath; flowers about 2.5 cm. long, 4-parted, in terminal sessile panicles; calyx lobes ovate-lanceolate. acuminate-subulate, spreading; corolla red; seeds angled.

Rondeletia disperma Jacq. Sel Stirp. 59. 1763.

The type material was collected in the vicinity of Cartagena, on the islands of Baru and Tierra Bomba. Since the fruit is described as 2-celled with one seed in each cell, evidently the plant is not a *Rondeletia*, and its proper position is unknown.

Rondeletia eriantha Benth. Pl. Hartw. 192. 1845.

Between Villeta and Guaduas, Prov. Bogotá, *Hartweg 1051* (Y, type collection).

A shrub 2.5-3.5 m. high; stipules lance-subulate; leaves subsessile, oblong-obovate, 7-10 cm. long, acute or acuminate, narrowed to the rounded or subcordate base, appressed-pilose beneath along the nerves or glabrate; flowers 5-parted, forming a large corymbiform panicle; calyx lobes ovate, acutish; corolla tube 8 mm. long, densely retrorse-pilose; seeds acute at each end.

Rondeletia euryphylla, sp.—Arbor parva, ramulis gracilibus vel crassiusculis, subteretibus vel obtuse tetragonis, densissime pilis

subrigidis adpressis vel adscendentibus fulvis vel brunnescentibus pilosis, internodiis brevibus vel elongatis; stipulae 5-9 mm. longae, e basi triangulari subulato-acuminatae, erectae, rigidae, persistentes, extus dense adpresso-pilosae; folia opposita, petiolo crassiusculo 3-7 mm. longo dense adpresso-piloso; lamina late ovata, ovato-elliptica vel rarius ovato-oblonga, 5.5-13 cm. longa, 2-6 cm. lata, abrupte sensimve acuminata, vel longiacuminata, basi acuta vel abrupte acuminata, rarius obtusa, crasse membranacea, supra viridis, dense pilis brevibus patulis vel subadpressis asperulo-pilosa, nervis prominentibus, subtus dense molliterque pilis crassiusculis albidis pilosa, costa crassiuscula elevata, nervis lateralibus utroque latere 11-13, prominentibus, gracilibus, angulo lato adscendentibus, arcuatis, parallelis, juxta marginem conjunctis, nervulis prominentibus transversis et subparallelis reticulato-conjunctis; flores tetrameri in paniculam 4-9 cm. longam et 6-10 cm. latam trichotomam dense multifloram apice rotundatam dispositi, ramulis adscendentibus vel patulis dense pilis adscendentibus crassiusculis pilosis, bracteis linearibus vel subulatis 4-10 mm. longis, ramulis plerumque secundifloris, pedicellis plerumque 1-3 mm. longis; hypanthium 2 mm. longum, late oblongum, pilis longiusculis subadpressis dense indutum; calyx 4-partitus, laciniis 2-3 mm. (in fructu ad 5 mm.) longis, linearibus, lanceolatis vel anguste triangularibus, acutis vel obtusis, extus adpresso-pilosis, intus glabris, saepe reflexis; corolla alba, extus pilis brevibus albidis adscendentibus dense induta et saepe plus minusve tomentosa, tubo 7-8 mm. longo, 1.5 mm. lato, superne vix dilatato, lobis rotundatis, 2.5-3 mm. longis, saepe crispulis, intus minute puberulis vel fere glabris; capsula subglobosa, 5 mm. longa, fusco-brunnea, pubescens vel glabrata; semina numerosissima, minuta, angulata.—Colombia; Belén, Dept. Caldas, alt. 1,500-1,700 m., September 15, 1922, *Francis W. Pennell 10627* (U. S. Nat. Herb. No. 1,140,701, type). Titiribí, near Medellín, *Toro 523* (Y). Girardote, *Toro 749* (Y). Without locality, *Goudot* (K). Salgar, *Toro 1283* (Y).

Toro 749, a fruiting specimen, differs from the other collections in its smaller leaves, laxer inflorescence, and longer calyx lobes, but it is probably only a variant from the typical form. *R. euryphylla* is easily recognized by the abundant, soft or somewhat rough pubescence of the leaves, and by the complete absence of tomentum except sometimes on the corolla.

Rondeletia glabrata, sp. nov.—Frutex 1.5-2.5 m. altus, ramulis gracilibus teretibus cinnamomeis glabratis, internodiis 2.5-5.5 cm. longis; stipulae e basi triangulari longe sensimque attenuato-acuminatae, 7-9 mm. longae, erectae, persistentes, brunnescentes, glabratae; folia opposita, petiolo gracili 5-9 mm. longo supra anguste sulcato glabrato; lamina ovata vel oblongo-ovata, 7.5-13.5 cm. longa, 2.5-5 cm. lata, longe sensimque acuminata, acumine angusto, basi acutiuscula vel abrupte breviterque acuta,

crasse membranacea, utrinque glabra vel in statu juvenili subtus ad nervos sparse arachnoideo-tomentulosa, lucida, supra viridis, subtus paullo pallidior, costa nervisque gracilibus, supra conspicuis sed non elevatis, subtus prominentibus, nervis lateralibus utroque latere c. 12, angulo lato adscendentibus, valde arcuatis, parallelis, juxta marginem conjunctis, nervulis prominulis subparallelis et reticulato-conjunctis; flores tetrameri in paniculam rotundatam 9 cm. longam et 10 cm. latam trichotomam laxam multifloram 5 cm. longe pedunculatam basi foliis 2 c. 5.5 cm. longis fulcratam dispositi, cymulis 3-5-floris, pedicellis 2-6 mm. longis minute sparseque tomentulosis vel glabratis; hypanthium late oblongum 2 mm. longum sparse tomentulosum; calyx 4-partitus, laciniis linearibus viridibus 2-4 mm. longis, extus sparse minuteque tomentulosis vel glabratis, intus glabris; corolla extus sparse et adpresse arachnoideo-tomentulosa, tubo gracili 14-15 mm. longo superne vix dilatato et 2 mm. lato, lobis 4 rotundatis saepe crispulis intus glabris, extus fere glabris, 2.5-3 mm. longis; capsula subglobosa 3 mm. longa costata glabrata. —Colombia: In woods between Piedecuesta and Las Vegas, Dept. Santander, alt. 2,000-2,500 m., December 19-24, 1926, *E. P. Killip and Albert C. Smith 15504* (U. S. Nat. Herb. No. 1,351,375, type; duplicate in Y), *15482* (W, Y).

Corolla "red" or "pinkish red."

This species is well marked by the glabrous leaves and long red corolla.

Rondeletia inconstans, sp. nov.—Frutex vel arbor parva 2-4.5 m. alta, ramulis gracilibus vel crassiusculis, subteretibus vel obtuse tetragonis, ferrugineo-brunneis, statu juvenili laxe arachnoideo-tomentosis, cito glabratis, internodiis elongatis; stipulae 6-20 mm. longae, persistentes, anguste oblongae, apice obtusae vel rotundatae et mucronatae vel cuspidatae, glabratae, erectae, brunnescentes; folia opposita, petiolo valido 5-14 mm. longo tomentoso vel glabrato; lamina ovata, elliptico-ovata vel oblongo-elliptica, 8-20 cm. longa, 4-9 cm. lata, abrupte acuminata, basi abrupte acuta vel acuminata, rarius obtusa vel rotundata, crasse membranacea, statu juvenili utrinque laxe cinereo-tomentosa, supra cito glabrata, viridis, nervis prominulis, subtus glabrata vel ad nervos arachnoideo-tomentosa, rarius in tota superficie arachnoideo-tomentosa, costa nervisque gracilibus prominentibus, nervis lateralibus utroque latere 9-15, angulo lato vel angusto adscendentibus, curvis, prope marginem conjunctis, nervulis transversis saepe prominentibus et parallelis, reticulato-conjunctis; flores tetrameri, in paniculam terminalem sessilem vel pedunculatam dispositi, paniculis laxe ramosis trichotomis ad 12 cm. longis, ramulis albido-tomentosis vel glabris, bracteis linearibus vel oblongis 2-8 mm. longis, cymulis densis, floribus sessilibus vel ad 3 mm. longe pedicullatis; hypanthium ovale 2 mm. longum dense albo-tomentosum; calyx 4-partitus, laciniis oblongis vel lineari-lanceolatis, 1.5 mm. (in fructu ad 3 mm.) longis, acutis vel obtusiusculis, extus sparse tomentulosis, intus glabris;

corolla rosea extus laxe vel dense albido-tomentosa, tubo gracili 8-14 mm. longo, superne paullo ampliato, lobis 4 rotundatis 2 mm. longis crispulis, intus glabris capsula subglobosa 4-5 mm. longa, tomentulosa vel glabrata, costata; semina numerosissima, minuta, angulata.—Colombia: Quetame, Pipiral, eastern Andes of Bogotá, alt. 1,000-1,600 m., July, 1897, *F. C. Lehmann 8751* (Herb. Field Mus. No. 578,284, type; duplicates in W and S). Andes of Antioquía, 1,400-1,700 m., *Lehmann 5156* (F, W, S). Villavicencio(?), *André K.1098* (Y). Mindo(?), *André K.1099* (Y). Buenavista to Pipiral, Cundinamarca, 1,000-1,200 m., *Pennell 1683* (W, Y). Charta, Santander, 2,000-2,600 m., *Killip & Smith 19100* (W. Y). California, Santander, 2,300 m., *Killip & Smith 17074* (W, Y). Toledo, Norte de Santander, 1,700-1,900 m., *Killip & Smith 20084* (W, Y). Forests of Río Palacé, highlands of Popayán, 1,500-1,700 m., *Lehmann B.T.394* (G, Y). Without locality, *André 1097* (K).—Venezuela: Upper Cotiza, near Caracas, in light forest, 1,350 m., *Pittier 9837* (W, G), *7403* (W), *7192* (W). Between Maracay and Choroni, 1,200 m., *Fendler 1994* (G, K, M). Los Castillitos, above Caracas, 1,300-1,500 m., *Pittier 9181* (W, G, Y). Caracas, 900-1,200 m., *A. G. Bailey 31* (K). Middle Cotiza, near Caracas, in savannas, 1,000-1,400 m., *Pittier 8045* (W). Ojo de Agua, 1,500 m., *Eggers 13419* (W). Cotiza, 1,200 m., *Jahn* (W).

The corolla is described as "red," "pale carmine," and "tube pink, lobes white, pink-tinged."

The specimens cited are variable in size of corolla and in leaf pubescence. It may well be that they represent more than a single species, but the material at hand is not sufficiently extensive to enable one to determine the importance of the variations. Either all the material represents one species, or else it should be separated into three to five, and the propriety of such a separation is very doubtful under present conditions.

R. inconstans agrees in most details with the description of *R. orthoneura* Schum. & Krause, but in that the flowers are said to be pentamerous.

Rondeletia orthoneura Schum. & Krause, Bot. Jahrb. Engler 40: 314. 1908.

Type reported as from Colombia, *Warscewicz 622*.

Stipules ovate-oblong, 6-8 mm. long; petioles 3-6 mm. long; leaf blades elliptic or oblong-elliptic, 6-14 cm. long, acuminate, at the base acutish or rounded, villous-tomentose when young, in age arachnoid-pilose; flowers 5-parted, the panicle long-pedunculate; calyx lobes linear, 2 mm. long, acute; corolla tube 12-15 mm. long, tomentose.

It is quite possible that the type of this species is from Panama rather than Colombia.

Var. **angustior** Schum. & Krause, op. cit. 315, has narrower leaves than the typical form. The type is *Triana* 1779 from Colombia.

Rondeletia pubescens HBK. Nov. Gen. & Sp. 3: 396. *pl. 291* 1820.

Type collected between Mariquita and Honda, *Bonpland*. Honda, Tolima, 300-500 m., *Pennell 3558* (F, W, G, Y, M). Quebrada de Angeles to Río Cabrera, Huila, 450 m., *Rusby & Pennell 341* (W, Y). Natagaima, Huila, 450 m., *Rusby & Pennell 1155* (F, W, G, Y, M). Below Boca Saldaña, Huila, 400 m., *Rusby & Pennell 1209* (G, Y). Piedras, 800 m., *André 1911* (Y). Without locality, *Linden 1170* (G). Río Paez, Tolima, 1,000-1,500 m., *Lehmann 5775* (F). Honda and La Yegua, Tolima, 100-500 m., *Lehmann 7334* (F). Prov. Antioquía, *Kalbreyer 1914* (K). On plains and hillsides, or sometimes in forest.

A shrub; stipules lance-subulate, usually shorter than the petioles; leaf blades oblong, obtuse or acutish, glabrate above, densely grayish-pubescent beneath; flowers usually 5-parted, yellowish white, in large leafy panicles; hypanthium whitish-puberulent; calyx lobes lanceolate or oblong, acute or obtuse; corolla tube about 5 mm. long; seeds acute at each end.

Rondeletia Purdiei Hook. f. in Curtis' Bot. Mag. *pl. 5669.* 1867.

Santa Marta, *Purdie* (G, type collection). Near Bonda, 45 m., *H. H. Smith 319* (F, W, G, Y, M, P). Near Masinga, 75 m., *H. H. Smith 320* (F, W, G, Y, P, M). Torrecilla, near Turbaco, Bolívar, 150-300 m., *Killip & Smith 14263* (W, Y), *14628* (W, Y), *14397* (W, Y). Cartagena, *Bro. Heriberto 28* (W), *87* (W, Y), *133* (W). Foothills of Cordillera de Santa Marta, near Río Frío, *Pittier 1721* (W, Y). Cartagena to Turbaco, *Goudot* (K). Without locality, *Funcke & Schlim 720* (Y). In thickets or dry forest.

A shrub or small tree; stipules broadly triangular, subulate-acuminate; leaves short-petiolate, oblong-obovate to oblong or ovate-oblong, mostly obtuse, attenuate or acuminate at the base, nearly glabrous; flowers white, in dense rounded panicles; hypanthium appressed-pubescent; calyx lobes ovate or elliptic, obtuse or acute; corolla tube 8-9 mm. long, sparsely appressed-pubescent; seeds attenuate at each end.

Called "coral" at Turbaco.

Rondeletia reflexa Benth. Pl. Hartw. 192. 1845. *Arachnothryx reflexa* Planch. Fl. Serres 5: sub *pl. 442.* 1849.

Type collected near Villeta, Prov. Bogotá, *Hartweg* 1052. Bogotá, *Ariste-Joseph A857* (W). Caracoli near Honda, *André 540* (K).

A shrub 1.5-2.5 m. high; stipules subulate; leaves short-petiolate, ovate to oval, acuminate to obtuse, glabrate above, finely and densely whitish-tomentose beneath; flowers 4-parted, in terminal leafy

panicles; hypanthium densely white-tomentose; calyx lobes lanceolate or oblong, acute, reflexed in fruit; corolla tube 12 mm. long, laxly tomentose.

Rondeletia rhynchospora HBK. Nov. Gen. & Sp. 3: 395. 1820.

Type from Honda, *Bonpland.*

A shrub; stipules linear, sericeous, slightly shorter than the petioles; leaves oblong-elliptic, 7 cm. long or more, acute, slightly narrowed at the base, pubescent above, grayish-tomentose beneath, reticulate-veined; flowers in terminal trichotomous panicles; capsule subglobose, pubescent; seeds appendaged at each end.

Rondeletia rosea (Linden), comb. nov. *Arachnothryx rosea* Linden, Hort. Linden No. 2. 1859.

Described from cultivated plants grown at Brussels, and brought from Colombia by Schlim.

Leaves ovate or ovate-elliptic, short-petiolate, acute at the base and apex, glabrate above, cinereous-puberulent beneath on the nerves; flowers in terminal panicled cymes, short-pedicellate; calyx lobes triangular-subulate; whole inflorescence appressed cinereous-pubescent; corolla pink, puberulent, the 4 lobes ovate, obtuse.

The description and colored plate of this plant are so indefinite that it is difficult to decide whether they really apply to any Colombian species of which material is available.

Rondeletia rugulosa, sp. nov.—Ramuli subteretes, ferrugineo-brunnei, novellis albido-tomentosis, vetustioribus pilis adscendentibus rigidis fulvis hirsutis, internodiis elongatis; stipulae oblongo-triangulares, 10-12 mm. longae, acuminatae, erectae, brunneae, extus sparse tomentosae et adpresso-pilosae, persistentes; folia opposita, petiolo valido 4-8 mm. longo hirsuto et interdum tomentoso; lamina oblongo-elliptica vel ovato-elliptica, 8-14 cm. longa, 3.5-6 cm. lata, longiacuminata, basi acuta vel anguste rotundata, crasse membranacea, supra viridis, statu juvenili laxe arachnoideo-tomentosa, cito glabrata, reticulato-rugulosa, nervis impressis, subtus dense tomentosa, interdum dense albo-tomentosa, ad nervos adpresso-pilosa, costa nervisque gracilibus elevatis, nervis lateralibus utroque latere c. 12, angulo lato adscendentibus, curvis, prope marginem conjunctis, nervulis transversis crebris parallelis anastomosantibus; flores tetrameri in paniculam terminalem sessilem 16 cm. longam dispositi, panicula laxe ramosa, ramulis albo-tomentosis, floribus congestis sessilibus vel brevissime pedicellatis, bracteis subulatis 2 mm. longitudinem vix superantibus; hypanthium dense albo-tomentosum ovali-obovatum 2 mm. longum; calyx 4-partitus, lobis 1.5-2 mm. longis, erectis vel patulis, lanceolato-oblongis, acutis, extus tomentosis, intus glabris; corolla extus laxe albo-tomentosa, infra lobos pilis brevibus rigidis adpresso-pilosa, tubo gracili 1 cm. longo superne

paullo ampliato, lobis 4 patulis rotundatis 2 mm. longis intus glabris. —Colombia: Without locality, *I. Linden 692* (Gray Herb., type; duplicate in K). Santa Marta, *Purdie* (G, K).

The Purdie specimens differ in having a denser and whiter tomentum on the lower leaf surface. *R. rugulosa* probably is related to *R. discolor* HBK., but in that the flowers are described as being about 2.5 cm. long.

Rondeletia Schumanniana Krause (Bot. Jahrb. Engler 40: 315. 1908), although cited from Colombia, was collected in Veraguas, Panama.

Rondeletia sp.(?) *Petesia tomentosa* Jacq. Sel. Stirp. 18. 1763. Type from Cartagena, *Jacquin*.

This has been referred with doubt to the genus *Rondeletia*, but the description does not agree with any of the species known from the Atlantic coast.

23. SIPANEA Aubl.

Sipanea biflora L. f. Suppl. Pl. 134. 1781.

Reported by Schumann (in Mart. Fl. Bras. 6[6]: 252. 1889) as collected along the Orinoco near Maypures, *Spruce 3620*. Also in the Guianas and Brazil.

A low herb, the slender stems often prostrate, puberulent; leaves ovate or elliptic, acute, 2-4.5 cm. long, glabrous above, appressed-pilose beneath; flowers axillary; calyx lobes subulate, glabrous, 3-4 mm. long; corolla 1.5 cm. long, glabrous, the lobes oblong, obtuse; capsule subglobose, 4 mm. in diameter.

Sipanea colombiana Wernh. Journ. Bot. 55: 174. 1917.

Type from Crecenoche, Prov. Ocaña, alt. 270 m., *Schlim 548*. Plains of the Río Guatique and Río Meta, 100-300 m., *Lehmann 8753* (F). Lower Magdalena, *Dawe 445* (W).

An erect, densely pubescent herb; leaves sessile or nearly so, oblong or oblong-elliptic, 2-4 cm. long, obtuse or acute; flowers in small dense cymes; calyx lobes linear, 2.5-4 mm. long; corolla white, the slender tube 9-14 mm. long, nearly glabrous; capsule 3-4 mm. long.

Sipanea glomerata HBK. Nov. Gen. & Sp. 3: 310. 1820.

Type collected along the Orinoco near Atures, *Bonpland*. Reported by Schumann (in Mart. Fl. Bras. 6[6]: 249. 1889) from Maypures, *Spruce 3665*.

Stems woody at the base, yellowish-sericeous; leaves very shortly petiolate or subsessile, lanceolate, long-acuminate, sericeous on both surfaces; inflorescence terminal, subcapitate, sessile, the

outer bracts trifid; calyx lobes subulate, sericeous, 8-9 mm. long; corolla yellow, 2 cm. long, the tube densely sericeous above the middle, the lobes ovate, acute.

Sipanea Trianae Wernh. Journ. Bot. 55: 174. 1917.

Type from Colombia, *Triana 1776*. Grassy plain east of Villavicencio, 450 m., *Pennell 1450* (G).

A pilose herb; leaves ovate, 2-3 cm. long, scarcely acuminate; calyx lobes setaceous, 3 mm. long; corolla pink, densely pilose, the tube 4 mm. long.

24. ELAEAGIA Wedd.

Elaeagia utilis (Goudot) Wedd. Monogr. Cinchon. 94. 1849. *Condaminea utilis* Goudot, Compt. Rend. 18: 260. 1844.

Type from Fusagasugá, *Goudot*. Mount San Martín, near Charta, Santander, 2,300-2,500 m., *Killip & Smith 19156* (W, Y).

A tree 4.5-6 m. high; leaves short-petiolate, broadly elliptic, abruptly very shortly and broadly acuminate, acute at the base, glabrous or nearly so, 15-25 cm. long; flowers 3-4 mm. long, white, arranged in large sessile terminal glabrous panicles; corolla lobed nearly to the base; fruit a small capsule.

The vernacular name is reported as "árbol de cera."

25. OLDENLANDIA L.

Oldenlandia corymbosa L. Sp. Pl. 119. 1753.

Sandy salt marsh, Cartagena, *Pennell 12006* (W, G). Widely distributed as a weed in the tropics of both hemispheres.

A slender annual, glabrous or nearly so; leaves linear; flowers in axillary few-flowered cymes; corolla white, about 1 mm. long; capsule nearly 2 mm. long.

Oldenlandia herbacea (L.) DC. Prodr. 4: 425. 1830. *Hedyotis herbacea* L. Sp. Pl. 102. 1753.

Villavicencio, 500 m., *Pennell 1549* (F, W, G). Buenaventura, at sea level, *Pennell & Killip 5306* (W, G). Santa Marta, *H. H. Smith 1780* (F, W, G, P). Puerto Berrio, 130 m., *Pennell 3769* (W, G). Río Grande, *André K.1406* (F). On open banks or in wet fields. Widely distributed in tropical America and in the Old World.

A glabrous annual with linear leaves; flowers solitary in the leaf axils, on long pedicels; corolla white, 1.5 mm. long; capsule 2.5-3 mm. long.

26. ARCYTOPHYLLUM Willd.

Arcytophyllum aristatum, sp. nov.—Frutex prostratus repens, caulibus crassis ramosissimis 3-20 cm. longis dense foliatis glabris; stipularum vagina brevissima subtruncata plerumque bidentata;

folia sessilia, anguste oblonga, c. 5 mm. longa et 1.5 mm. lata, apice obtusa vel acuta et pilifera, seta 0.7 mm. longa instructa, coriacea, glabra, lucida, costa supra late subimpressa subtus prominula, marginibus subincrassatis; flores terminales solitarii subsessiles; hypanthium late obovoideum 1 mm. longum; calycis lobi 4 linearisubulati, 1.8 mm. longi, superne filiformi-attenuati, glabri, sinu rotundato separati; corolla alba glabra 4.5 mm. longa, tubo lobis rotundatis obtusis fere duplo longiore.—Colombia: Páramo del Quindío, Dept. Caldas, alt. 3,700-4,200 m., August 15-20, 1922, *Francis W. Pennell and Tracy E. Hazen 10003* (U. S. Nat. Herb. No. 1,140,737, type; duplicates in G and Y). Páramo de Ruiz, Tolima, 3,400-3,800 m., *Pennell 3021* (W, G, Y). Tolima, *Goudot* (K).—Ecuador: Páramos 12 miles west of Tulcán, Prov. Carchi, 3,300 m., *Hitchcock 20923* (W, Y). Hills near Cuenca, August, 1864, *Jameson* (W, S). Villanaco, near Loja, *Jameson* (K). Hills near Cuenca, *Jameson 52* (K).

Closely related to *A. confertum* (R. & P.) Standl., of Peru, but that differs in its narrower and longer leaves and broader, conspicuously piliferous calyx lobes.

Arcytophyllum cachirense (Karst.) Schum. in E. & P. Nat. Pfl. 4[4]: 28. 1891. *Hedyotis cachirensis* Karst. Linnaea 30: 145. 1859-60. *Mallostoma cachirense* Karst. Fl. Columb. 2: 9. *pl. 105.* 1862.

Type from Mount Cachiri, between Ocaña and Bucamaranga, at 3,000 m., *Karsten.*

A shrub 60-90 cm. high, the branches erect, puberulent; leaves sessile, crowded, mostly ternate, linear-lanceolate, acute, glabrous, 1.5-2 cm. long, 3-4 mm. wide; stipules pilosulous, subulate from a broad base; inflorescence umbelliform, cymose, terminal, the flowers short-pedicellate, pinkish white; calyx lobes 4, linear-lanceolate, acute; corolla subrotate, the lobes lanceolate, acute, villous within; capsule turbinate.

Arcytophyllum capitatum (Benth.) Schum. in E. & P. Nat. Pfl. 4[4]: 28. *f. 8.* 1891. *Rachicallis capitata* Benth. Pl. Hartw. 195. 1845. *Hedyotis capitata* Walp. Repert. Bot. 6: 56. 1846. *H. Hartwegiana* Wedd. Chlor. And. 2: 45. 1857. *Ereicoctis capitata* Kuntze, Rev. Gen. 1: 281. 1891.

Ascent to Sotara, Prov. Popayán, 3,000-3,300 m., *Hartweg 1070* (Y, type collection). Guanacas, Andes of Popayán, 3,000-3,400 m., *Lehmann 5573* (F, W). Páramo de las Delicias, Andes of Popayán, 3,000-3,500 m., *Lehmann 8452* (F, W). Steep open gulch in forest, Cerro Tatama, Caldas, 3,200-3,400 m., *Pennell 10488* (W). Also in Ecuador.

An erect shrub, densely leafy; leaves oblong, acute, coriaceous, glabrous; stipules broadly ovate, pale, loose, glabrous, ciliate with several long bristles; flowers sessile in terminal heads; corolla white, the lobes pilose within; calyx lobes linear.

Arcytophyllum caracasanum (HBK.) Standl. Contr. U. S. Nat. Herb. 18: 126. 1916. *Hedyotis caracasana* HBK. Nov. Gen. & Sp. 3: 393. 1820. *Rachicallis caracasana* DC. Prodr. 4: 434. 1830.

Páramo de Buena Vista, Huila, 3,000-3,600 m., *Pittier 1114* (W, Y). Páramo de Santurbán, Santander, 3,950-4,160 m., *Killip & Smith 17518* (W, Y), *17502* (W, Y). Reported by Weddell (Chlor. And. 2: 44. 1857) from Páramo de Buena Vista, *Funck & Schlim 1277*. Also in Venezuela.

An erect glabrous shrub, corymbosely branched, densely leafy; leaves oblong, obtuse, muticous, very thick, the margins revolute; stipules triangular-ovate, irregularly erose-dentate; flowers terminal, solitary, sessile; calyx lobes oblong-lanceolate.

Arcytophyllum caucanum Standl. Contr. U. S. Nat. Herb. 18: 127. 1916.

Páramo de Buena Vista, Cauca, 3,000-3,600 m., *Pittier 1137* (W, type). Azufral, *André 3254* (F, K, Y). Páramo de Moras, Cauca, 3,000-3,500 m., *Pittier 1412* (W.) Without locality, *Triana 1775* (K).

An erect shrub; leaves oblong or oval, 6 mm. long, 3 mm. wide, obtuse or acutish, mucronulate, glabrous, coriaceous; stipules broadly ovate, ciliate with several long bristles; flowers in dense terminal clusters; calyx lobes triangular-oblong, acute; corolla 7-9 mm. long, the lobes pilose within.

Arcytophyllum cephalanthum (Wedd.) Standl. Contr. U. S. Nat. Herb. 18: 127. 1916. *Hedyotis cephalantha* Wedd. Chlor. And. 2: 46. 1857.

Province of Pamplona, at 3,200-3,250 m., *Linden 1340* (G, type collection). Ocaña, 2,550 m., *Kalbreyer 582* (K). Ocaña, 1,800-2,100 m., *Schlim 343* (K). Weddell (l. c.) reports also *Funck & Schlim 1278* from Pamplona.

An erect shrub, the branches puberulent; leaves lanceolate or oblong, sometimes 2 cm. long, acute, short-petiolate, glabrous; petioles puberulent; stipules triangular, acuminate, entire, pubescent; flowers terminal, capitate; corolla lanate in the throat.

Arcytophyllum latifolium Standl. Contr. U. S. Nat. Herb. 18: 127. 1916.

Páramo de Buena Vista, Cauca, 3,000-3,600 m., *Pittier 1159* (W, type).

An erect glabrous shrub; leaves broadly ovate-oblong, 10-14 mm. long, very obtuse or rounded at the apex; stipules broadly ovate, ciliate with several bristles, pale, loose; flowers subcapitate; calyx lobes lance-oblong, acute; corolla 6-8 mm. long, the lobes pubescent within.

Probably only a form of *A. capitatum*.

Arcytophyllum muticum (Wedd.) Standl. Journ. Washington Acad. Sci. 18: 163. 1928. *Hedyotis mutica* Wedd. Chlor. And. 2: 43. *pl. 50, f. B.* 1857.

Type from Páramo de Coati (Choachi[?]), Prov. Tunja, at 3,500 m., *Linden 1327;* reported by Weddell also from Province of Bogotá, *Goudot.* Páramo de Choachi, near Bogotá, 3,700 m., *Killip & Ariste-Joseph 11958* (W, G, Y); *Pennell 2223* (F, W, G, M, Y). Páramo de Santurbán, Norte de Santander, 3,900 m., *Killip & Smith 19583* (W). Páramo de Cruz Verde, near Bogotá, 3,300-3,600 m., *Pennell 2088* (W, G, Y). Paletara, Cauca, 3,000 m., *Pennell 6931* (W, G, Y). Páramo de Guasca, 3,200 m., *Ariste-Joseph A520* (W). Páramo de Buena Vista, Cauca, 3,000-3,600 m., *Pittier 1142* (W). Páramo de Moras, Cauca, 3,000-3,500 m., *Pittier 1400* (W). Páramo de las Coloradas, Santander, 3,900-4,100 m., *Killip & Smith 18449* (W). Páramo de las Puentes, Santander, 3,500-3,700 m., *Killip & Smith 18224* (W). Páramos de Bogotá, *Dawe 128* (W). Growing in grassy meadows. Also in Costa Rica.

A prostrate shrub; leaves lance-oblong, sessile, glabrous, obtuse, muticous, coriaceous; flowers terminal, solitary; calyx lobes obovate-oblong, obtuse, muticous; corolla white.

Arcytophyllum nitidum (HBK.) Schlecht. Linnaea 28: 492. 1856. *Hedyotis nitida* HBK. Nov. Gen. & Sp. 3: 392. 1820. *Rachicallis nitida* DC. Prodr. 4: 433. 1830. *H. Humboldtiana* Steud. Nom. Bot. ed. 2. 1: 727. 1840. *Ereicoctis nitida* Kuntze, Rev. Gen. 1: 281. 1891. *Mallostoma nitidum* B. & H. ex Ind. Kew. 2: 150. 1895.

Type from Bogotá, *Bonpland.* California, Santander, 3,000 m., *Killip & Smith 16910* (W, Y). Páramo de las Coloradas, Santander, 3,900-4,100 m., *Killip & Smith 18413* (W, Y). Páramo de las Puentes, Santander, 3,500-3,700 m., *Killip & Smith 18237* (W). Páramo de las Vegas, Santander, 3,700 m., *Killip & Smith 15627* (W, Y). Páramo de Romeral, Santander, 3,800-4,100 m., *Killip & Smith 18574* (W). Páramo del Hatico, Norte de Santander, 2,900 m., *Killip & Smith 20664* (W, Y). Charta, Santander, 2,300 m., *Killip & Smith 18889* (W, Y). Páramo de Mogotocoro, Santander, 3,700 m., *Killip & Smith 17599* (W). Above Bogotá, 2,700 m., *Rusby & Pennell 1288* (Y). Balsillas, Huila, 2,200 m., *Rusby & Pennell 762* (W, G, Y). Páramo de Chaquiro, 3,000 m., *Pennell 4281* (Y). Near Bogotá, *Ariste-Joseph A886* (W); in 1919, *Ariste-Joseph* (W). Montserrate, *Ariste-Joseph A49* (W). Páramo de Choachi, near Bogotá, 3,700 m., *Killip & Ariste-Joseph 11940* (W, Y). Santa Marta, *Purdie* (G). Mountains near Bogotá, *Holton 416* (G). Montserrate, *Dawe 19* (W). In high grassy meadows, on brushy slopes, and in sphagnum bogs. Also in Venezuela.

An erect, densely branched shrub, sometimes 60 cm. high, densely leafy; leaves linear to oblong, muticous, imbricate, coriaceous, the margins revolute, glabrous; stipules triangular-ovate, usually 3-dentate, puberulent, long-persistent; flowers terminal, solitary, sessile; calyx lobes oblong-lanceolate or linear-lanceolate; corolla white or tinged with pink.

Arcytophyllum thymifolium (R. & P.), comb. nov. *Hedyotis thymifolia* R. & P. Fl. Peruv. 1: 56. *pl. 88, f. a.* 1798. *H. thujoides* Willd. ex R. & S. Syst. Veg. 3: 527. 1818. *H. thesioides* Willd. ex HBK. Nov. Gen. & Sp. 3: 391. 1820, as syn. *H. ericoides* Willd. ex HBK. Nov. Gen. & Sp. 3: 393. 1820. *Anotis thymifolia β thesioides* DC. Prodr. 4: 432. 1830. *A. thymifolia β ericoides* Wedd. Chlor. And. 2: 44. 1857. *Anotis ericoides* DC. Prodr. 4: 433. 1830.

Type of *H. ericoides* collected between Oña and Páramo de Saraguru. Reported by HBK. from Pasto, and by Weddell (Chlor. And. 2: 44. 1857) from Plateau of Tuquerres at 3,000 m., *Triana*. Also in Ecuador and Peru.

A dense erect shrub, the branches puberulent; stipules triangular-ovate, 1-3-dentate; leaves linear, mostly 5-15 mm. long, revolute, glabrous; flowers in small dense terminal cymes; calyx lobes linear or linear-lanceolate; corolla white, glabrous, usually 6-8 mm. long.

27. DIDYMOCHLAMYS Hook. f.

Didymochlamys Whitei Hook. f. Icon. Pl. *pl. 1122.* 1872.

Type from Atrato. In forest, Córdoba, El Valle, 80-100 m., *Killip 5137* (W).

A small fleshy herb, epiphytic or terrestrial; leaves apparently alternate, oblong-lanceolate or oblanceolate-oblong, acuminate, nearly sessile, glabrous; stipules 2 at the base of each petiole, the larger one linear, the smaller deltoid and glandlike; flowers in a terminal head subtended by 2 large, white or green, cordate bracts; calyx lobes 5, lanceolate; corolla campanulate; fruit 2-celled, many-seeded.

28. SCHRADERA Vahl

Schradera acuminata Standl. Field Mus. Bot. 4: 284. 1929.

In forest, La Cumbre, Dept. El Valle, 1,800-2,000 m., *Pennell 5146* (W, type).

A glabrous tree; leaves petiolate, elliptic or oval-elliptic, 6.5-8.5 cm. long, abruptly short-acuminate, obtuse or rounded at the base, with about 12 pairs of lateral veins; flower heads about 4-flowered, the peduncle 5 mm. long, the involucre 17 mm. long; calyx 7 mm. long.

Schradera cacuminis Standl. Field Mus. Bot. 4: 284. 1929.

Bushy summit of west peak, La Cumbre, El Valle, 2,100-2,400 m., *Killip 11369* (W, type).

A glabrous tree; leaves petiolate, narrowly elliptic-oblong, 8.5-10.5 cm. long, gradually or abruptly long-acuminate, acute at the base, the lateral nerves about 14 pairs; flower heads about 8-flowered, the peduncle 1 cm. long, the involucre 1.8 cm. long; calyx tubular, 9 mm. long; corolla white, the tube 10-12 mm. long, the lobes 5 mm. long.

Schradera Lehmannii, sp. nov.—Arbor 2.5 m. alta, ramulis crassis subteretibus rimosis ochraceis scaberulo-puberulis et minute verruculosis, internodiis brevibus; stipulae caducae, non visae; folia longe petiolata opposita, petiolo valido 2-2.8 cm. longo glabrato supra anguste sulcato; lamina coriacea, ovalis vel elliptico-ovalis, 10-13 cm. longa, 5-6.5 cm. lata, apice rotundata et abrupte breviterque acuminata, acumine triangulari subobtuso 5-7 mm. longo, basi obtusa vel subrotundata, abrupte contracta atque breviter decurrens, utrinque glabra, supra fusca, nervis manifestis sed non elevatis, subtus vix pallidior, costa gracili elevata, nervis lateralibus utroque latere c. 15, gracillimis, obscuris, angulo lato adscendentibus, rectis, prope marginem conjunctis; inflorescentia terminalis 1 cm. longe pedunculata, pedunculo crasso puberulo vel glabrato; involucrum cyathiforme, 2.5 cm. longum, 3 cm. latum, basi late rotundatum, truncatum et subintegrum, sparse scaberulo-puberulum vel glabratum; flores numerosi dense congesti sessiles; calyx glaber cylindrico-campanulatus 6-7 mm. longus truncatus subinteger; corolla (perfecte evoluta non visa) 14 mm. longa extus sparse puberula vel glabra, laciniis 5 lanceolato-linearibus attenuatis tubo longioribus.—Colombia: In dense rain forest on the coast of Buenaventura, July, 1903, *F. C. Lehmann K.142* (Herb. Kew., type).

From *S. acuminata* Standl. this differs in the long-petioled leaves with more divergent nerves, and in the larger, longer-pedunculate involucre.

Schradera revoluta Standl. Field Mus. Bot. 4: 285. 1929.

In forest, La Gallera, Micay Valley, Cauca, at 2,200-2,500 m., *Killip 7971* (W, type).

A glabrous tree; stipules broadly ovate, 8 mm. long; leaves short-petiolate, lance-oblong or narrowly elliptic-oblong, 4-6.5 cm. long, obtuse or acutish, obtuse at the base, the lateral nerves about 10 pairs; heads about 5-flowered, the peduncle 3-5 mm. long, the involucre 7-8 mm. long; calyx 6 mm. long; corolla white, the tube 1 cm. long, the lobes oblong, 7 mm. long, acutish.

Schradera stellata Benth. Bot. Voy. Sulph. 106. *pl. 40*. 1844.

Type from Gorgona Island.

Glabrous; leaves oblong-elliptic, long-acuminate, 7.5-12.5 cm. long; flower heads terminal, solitary, pedunculate, about 6-flowered, the involucre very short, irregularly sinuate-lobate, deflexed; corolla white, the lobes linear, 20 mm. long, stellately spreading, much exceeding the short tube.

29. GONZALAGUNIA R. & P.

Gonzalagunia asperula (Wernh.) Standl. Field Mus. Bot. 4: 278. 1929. *Gonzalagunia panamensis* var. *scabrida* Schum. in Mart. Fl. Bras. 6[6]: 293. 1889. *Gonzalea asperula* Wernh. Journ. Bot. 51: 219. 1913. *Duggena asperula* Standl. Contr. U. S. Nat. Herb. 18: 125. 1916.

Type from Colombia, *Triana 137*. Titiribí near Medellín, *Toro 405* (Y), *445* (Y). Santa Bárbara, Antioquía, *Pennell 10915* (W, G, Y). Armenia, *Toro 635* (Y). Near Villavicencio, 800 m., *André 1100* (K).

A slender shrub; leaves nearly sessile, lanceolate or ovate, usually rounded at the base; densely pilose beneath with short, spreading, often brownish hairs; calyx lobes very short, obtuse; corolla white, 5-6.5 mm. long; fruit 4-coccous, white.

G. panamensis var. *scabrida* was described from Colombia.

Gonzalagunia cornifolia (HBK.) Standl. Field Mus. Bot. 4: 279. 1929. *Gonzalea cornifolia* HBK. Nov. Gen. & Sp. 3: 416. 1819. *G. panamensis* var. *cornifolia* Schum. in Mart. Fl. Bras. 6^6: 293. 1889.

Type from Honda, *Bonpland*. Below Boca Saldaña, Huila, 400 m., *Rusby & Pennell 1196* (F, W, G, M, Y). El Convenio, west of San Lorenzo, Tolima, 500-700 m., *Pennell 3506* (W, G, M, Y). Salgar, *Toro 1045* (Y). Puerto Berrio, *Toro 1102* (Y). Piedecuesta, Santander, 980 m., *Killip & Smith 15439* (W, Y). Puerto Caldas, 2,000-2,500 m., *Pennell 8902* (W, Y), *8926* (W, Y). Quebrada Nueva to Cuchilla, El Valle, 1,200 m., *Pennell, Killip & Hazen 8445* (W, Y). Manizales, Caldas, 1,000-1,500 m., *Pennell 10189* (W, Y). Santuario, Caldas, 2,000 m., *Pennell 10311* (W, G, Y). Santa Bárbara, Antioquía, 900-1,500 m., *Pennell 10892* (W). Las Minitas, Antioquía, 2,000-2,500 m., *Pennell 10938* (W). Magdalena, *Holton 429* (G, Y, P). La Paila, *Holton* (Y). El Cascajal, 1,380 m., *André 3744* (Y). Mindo, *André K.541* (K, Y). Naranjo, Magdalena, *André K.543* (K, Y). Isla Brava, *André K.542* (K, Y). Cuesta de Tocotá, Cauca, 1,500-1,900 m., *Pittier 731* (W, Y). La Manuelita, Cauca, 1,100-1,300 m., *Pittier 802* (W). Salgar, *Toro 1263* (Y).

A slender shrub, the branches often recurved; leaves short-petioled, lanceolate to ovate, rounded or obtuse at the base, appressed-pilose; calyx lobes short, deltoid or rounded; corolla white, usually 8-10 mm. long; fruit white.

This is closely related to *G. panamensis*, but usually it can be separated easily by the short corolla.

Gonzalagunia dependens R. & P. Fl. Peruv. 1: 56. *pl. 86*. 1798. *Gonzalea pendula* Pers. Syn. Pl. 1: 132. 1805. *Gonzalea tomentosa* H. & B. Pl. Aequin. 1: 225. *pl. 64*. 1808. *Gonzalagunia tomentosa* Kuntze, Rev. Gen. 1: 284. 1891. *Gonzalagunia rugosa* Standl. Contr. U. S. Nat. Herb. 17: 446. 1914. *Duggena rugosa* Standl. Contr. U. S. Nat. Herb. 18: 126. 1916. *D. tomentosa* Standl., l. c.

Río Dagua, Buenaventura, *Lehmann 5095* (F, Y). Forests on Río Dagua, Cauca, *Lehmann B.T.615* (Y). East of Neiva, Huila, 1,300-1,800 m., *Rusby & Pennell 956* (W, G, Y). Huila, Río Paez Valley, Cauca, 1,600-1,900 m., *Pittier 1258* (W, type of *Gonzalagunia rugosa*). Río Quindío, Salento, Caldas, 1,500 m., *Killip & Hazen*

8954 (W, G, Y). Jimenes, Río Dagua, *André 2528* (F, G, Y). Tona, Santander, *Killip & Smith 19490* (W, Y). Ocaña, *Purdie* (G). Volcán Puracé, *Hartweg 1055* (G). Also in Ecuador and Peru.

A slender shrub; leaves ovate or lanceolate, long-acuminate, glabrous above, densely white-tomentose beneath; inflorescence white-tomentose; corolla white, the tube 5 mm. long; fruit white, 4-coccous.

Gonzalagunia pendula is illustrated in the original plate as having bifid stipules, but doubtless they were so drawn in error. Otherwise the plate and description agree well with the specimens listed here.

Gonzalagunia discolor Standl. Field Mus. Bot. 4: 277. 1929.

La Gallera, Micay Valley, Cauca, at 2,000-2,200 m., *Killip 7959* (W, type; Y).

A slender shrub; leaves short-petiolate, ovate or ovate-elliptic, 1.5-3.5 cm. long, acute or short-acuminate, obtuse or rounded at the base, glabrous above, strigillose or scaberulous beneath along the nerves or nearly glabrous; panicles spikelike, 1-3 cm. long, few-flowered; calyx lobes scarcely 1 mm. long, rounded-ovate, very obtuse; fruit 4-coccous, purplish red.

Gonzalagunia flexuosa Standl. Field Mus. Bot. 4: 278. 1929.

La Gallera, Micay Valley, Cauca, at 1,400-1,500 m., *Killip 7696* (W, type; G, Y). Also in Ecuador.

A slender tree; leaves petiolate, ovate-oblong or narrowly ovate, 11-15 cm. long, abruptly long-acuminate, green above, sparsely strigose or glabrate, grayish beneath, pilose with spreading whitish hairs; panicles 20-50 cm. long, the flowers slender-pedicellate; calyx lobes unequal, 1-2 mm. long, spreading, oblong-linear, obtuse; corolla white, 6-8 mm. long, sparsely strigose; fruit 4-coccous, densely strigose.

Gonzalagunia Killipii Standl. Field Mus. Bot. 4: 276. 1929.

La Gallera, Micay Valley, Cauca, at 1,100-1,300 m., *Killip 7823* (W, type; G, Y).

A slender shrub; leaves short-petiolate, ovate or oblong-ovate, 9-11 cm. long, long-acuminate, rounded at the base, green above, scaberulous or glabrate, bullate, densely whitish-tomentose beneath; panicles 15-28 cm. long, the flowers short-pedicellate; calyx scarcely 1 mm. long, 4-dentate, the teeth broadly triangular, acutish; corolla white, 5-6.5 mm. long. sparsely strigose; fruit white, depressed-globose, 5 mm. broad, nearly glabrous.

Gonzalagunia panamensis (Cav.) Schum. in Mart. Fl. Bras. 6^6: 292. 1889. *Buena panamensis* Cav. Anal. Hist. Nat. 2: 279. 1800. *Duggena panamensis* Standl. Contr. U. S. Nat. Herb. 18: 126. 1916.

Cacagualito, region of Santa Marta, 450 m., *H. H. Smith 98* (F, W, M, P, Y). Bonda and Calabaza, 75-750 m., *H. H. Smith 97* (F, W, G, M, P, Y). Also in Central America, Mexico, and Cuba.

A slender shrub or small tree, sometimes 4.5 m. high; leaves slender-petioled, lanceolate to ovate, appressed-pilose; calyx lobes short, deltoid, obtuse or acute; corolla white, 12-17 mm. long; fruit 4-coccous.

Gonzalagunia rudis Standl. Journ. Washington Acad. Sci. 17: 170. 1927. *Duggena rudis* Standl. Contr. U. S. Nat. Herb. 18: 125. 1916. *Gonzalagunia acutifolia* Rusby, Descr. N. Sp. S. Amer. Pl. 131. 1920.

Calabaza, region of Santa Marta, 180 m., *H. H. Smith 99* (F, M, P, S; Y, type of *G. acutifolia*). Santa Rosa, forests along Río Caballete, El Valle, 200 m., *Killip 11556* (W, G). Also in Panama.

A slender shrub; leaves subsessile, ovate-oblong, rounded at the base, strigose; calyx lobes very unequal, linear; corolla white, 5 mm. long; fruit 4-coccous.

30. CARMENOCANIA Wernh.

Carmenocania porphyrantha Wernh. Journ. Bot. 50: 241. *pl. 520*. 1912.

Type from Carmen, Prov. Ocaña, *Schlim 755*.

Stipules short, broad, apiculate; leaves opposite, short-petiolate, mostly obovate, 12-15 cm. long, short-acuminate, narrowed to the base, very sparsely pilose beneath along the nerves; flowers in terminal many-flowered corymbose cymes, mostly sessile; calyx lobes setaceous-linear, 7-8 mm. long; corolla violaceous, densely sericeous, the tube 2.5 cm. long, the 5 lobes 6-7 mm. long; ovary 2-celled.

31. CASSUPA H. & B.

Cassupa alba (Schum. in E. & P. Nat. Pfl. IV. 4: 63. 1891, nomen nudum) Schum. & Krause, Bot. Jahrb. Engler 40: 322. 1908.

Type from Cundai, alt. 1,200 m., *Lehmann 2590*. Reported also from Bogotá, *Triana 1838, 1840*.

A tree 8 m. high; leaves elongate-oblong or obovate, 20-30 cm. long, short-acuminate, densely white-puberulent beneath; flowers white, the corolla 4 cm. long, smooth, glabrous; berries globose, 9 mm. in diameter.

Cassupa Pittieri Standl. Contr. U. S. Nat. Herb. 17: 445. 1914.

Córdoba, Dagua Valley, Cauca, 30-100 m., *Pittier 514* (W, type).

A small tree 4-5 m. high; leaves petioled, oval, 28 cm. long, abruptly short-acuminate, green beneath, puberulent along the veins; flowers white, in a dense panicle; corolla 6 cm. long, verrucose, puberulent.

Cassupa verrucosa H. & B. Pl. Aequin. 1: 43. *pl. 12.* 1808.

Type collected near San Carlos on the Río Negro, *Bonpland.* Schumann (in Mart. Fl. Bras. 6[6]: 283. 1889) reports *Spruce 3041* from the same locality.

A tree sometimes 10-13 m. high; leaves long-petiolate, obovate-oblong, 18-40 cm. long, short-acuminate, cuneate at the base, glabrous above, beneath grayish-subtomentose; corolla pale red, 5-5.5 cm. long, tomentulose; fruit red.

32. ISERTIA Schreb.

Isertia coccinea Vahl, Eclog. Amer. 2: 27. 1798. *Guettarda coccinea* Aubl. Pl. Guian. 317. *pl. 123.* 1775.

Río Timbiquí, 400 m., *Lehmann 8998.* Also in the Guianas and Brazil.

A large shrub or small tree; leaves long-petiolate, oblong or obovate-oblong, 15-30 cm. long, acuminate, cuneate at the base, glabrous above, ferruginous-tomentose beneath; corolla 7-8 cm. long, red, ferruginous-tomentose; fruit globose, tomentose, red, about 1 cm. in diameter.

Isertia Haenkeana DC. Prodr. 4: 437. 1830.

Frasquillo, on Río Sinu, 90-120 m., *Pennell 4600* (W). Between Puerto Wilches and Puerto Santos, 110 m., *Killip & Smith 14887* (W). Between Nariño and El Tambor, 150-300 m., *Killip & Smith 14950* (W). Islitas, Río Nari, *André 420* (K). Carare, *André 274* (K, Y). Río Nembi, *André K.570* (K). Also in Central America.

A shrub 1-3.5 m. high; leaves opposite or ternate, short-petioled, obovate or oblong-obovate, 20-45 cm. long, beneath densely short-pilose or glabrate; flowers orange-red and yellow, in large dense narrow panicles; corolla 1.7-3.5 cm. long, puberulent or tomentulose; berries purplish, 5 mm. in diameter.

Called "canelito" in Panama.

Isertia Humboldtiana Schum. & Krause, Bot. Jahrb. Engler 40: 321. 1908.

Type from Colombia, without definite locality, *Lehmann CXCVIII.* Reported also from San Bartolomé on the Río Magdalena, the specimen previously listed (HBK. Nov. Gen. & Sp. 3: 324. 1820) as *I. coccinea* Vahl.

A shrub; leaves oblong, short-acuminate, 30-40 cm. long, ferruginous-puberulent beneath; ovary puberulent; corolla 2 cm. long, glabrous.

Isertia hypoleuca Benth. in Hook. Journ. Bot. 3: 220. 1841. *I. coccinea* var. *hypoleuca* Schum. in Mart. Fl. Bras. 6[6]: 286. 1889.

Without locality, *Triana* (K); *Goudot 21* (K). Santiago, *Toro 583* (Y). Also in the Guianas, Brazil, and eastern Peru.

A shrub or small tree, similar to *I. coccinea*, but the petioles usually longer; leaves densely white-tomentose beneath; calyx usually glabrous; flowers commonly smaller than in that species and less densely tomentose.

Isertia rosea Schum. in Mart. Fl. Bras. 6[6]: 284. 1899.

Reported by Schumann from San Carlos on the Río Negro, *Spruce 2894*. Also in Brazil and French Guiana.

Leaves petiolate, oblong-lanceolate to oblong or obovate-oblong, 12-38 cm. long, obtusely acuminate, cuneate at the base, glabrous; ovary 4-parted; corolla 4 cm. long, rose-purple, glabrous outside; berries 6 mm. in diameter, glabrous.

Isertia Purdiei Sprague, Trans. Bot. Soc. Edinburgh 22: 434. 1905.

Type from Muzo, *Purdie*.

Leaves elliptic-oblong, caudate-acuminate, cuneate at the base, glabrous above, gray or whitish beneath and reticulate-veined; calyx truncate, entire, appressed-pubescent; corolla tube sericeous, the lobes more than one-third as long as the tube, verruculose outside, reflexed in anthesis; anthers 7 mm. long.

Isertia Spraguei Wernh. Kew Bull. 1914: 65. 1914.

Type from eastern cordilleras near Pitalito, *Sprague*.

A tree; leaves elliptic or elliptic-oblong, 26-38 cm. long, acuminate, griseous-tomentose beneath; corolla 5-5.5 cm. long, sparsely and minutely pubescent; calyx glabrous.

33. COCCOCYPSELUM Sw.

Coccocypselum guianense (Aubl.) Schum. in Mart. Fl. Bras. 6[6]: 315. 1889. *Tontanea guianensis* Aubl. Pl. Guian. 108. 1775.

Santa Marta, 600 m., *H. H. Smith 541* (F, W, P). Widely distributed in northern South America and Brazil; also in Mexico, Central America, and the Greater Antilles.

Stems pilose or hirsute with spreading hairs; leaves ovate or rounded-ovate, rounded to acutish at the apex, pilose on the upper surface with short appressed hairs, soft-pilose beneath; heads few-flowered, long-pedunculate; corolla blue, 7-10 mm. long; fruit blue, 6-11 mm. in diameter.

Coccocypselum hirsutum Bartl. ex DC. Prodr. 4: 396. 1830. *Tontanea hirsuta* Standl. N. Amer. Fl. 32: 147. 1921.

Buenavista to Pipiral, Cundinamarca, 1,000 m., *Pennell 1676* (W, G). Río Piedras, west of Popayán, Cauca, 1,600 m., *Pennell & Killip 7209* (W). Amalfi, Antioquía, 1,700 m., *Lehmann CXCVII* (W). Also in Bolivia, Mexico, Central America, and Trinidad.

Stems densely hirsute or hispid; leaves oval or rounded-ovate, rounded to acutish at the apex, hirsute or hispid; flower heads few-flowered, long-pedunculate; calyx lobes linear, acute; corolla 12-14 mm. long, pale blue; berry dark blue, 6-10 mm. broad.

Coccocypselum hispidum Standl. *Tontanea hispida* Standl. N. Amer. Fl. 32: 147. 1921.

Buenaventura, El Valle, at sea level, on railroad embankment, *Pennell & Killip 5305* (W). Buenaventura, *André 260* (K). Also in Central America.

Stems pilose with appressed or ascending hairs; leaves ovate or rounded-ovate, hispid; heads sessile, few-flowered; corolla bluish white; calyx lobes linear; fruit blue, 8-15 mm. long.

Coccocypselum lanceolatum (R. & P.) Pers. Syn. Pl. 1: 132. 1805. *Condalia lanceolata* R. & P. Fl. Peruv. 1: 54. 1798. *Coccocypselum repens* HBK. Nov. Gen. & Sp. 3: 316. 1819, non Sw. *Coccocypselum canescens* C. & S. Linnaea 4: 139. 1829. *Tontanea canescens* Standl. N. Amer. Fl. 32: 146. 1921.

San Roque, *Toro 1345* (Y). Santa Marta, *H. H. Smith 2407* (F, W, P), *127* (F, W, P). Morales, Cauca, *Pennell & Killip 8290* (W). La Cumbre, El Valle, *Pennell 5181* (W). Río Suratá Valley, above Suratá, 2,000-2,300 m., *Killip & Smith 16570* (W). Chapa, Cauca, 1,850 m., *Lehmann 3590* (W). Charta, 2,000 m., *Killip & Smith 18862* (W), *17445* (W). Potrerillo to Miraflores, Palmira, El Valle, 1,200-1,800 m., *Pennell & Killip 6096* (W). East of Neiva, Huila, 1,300-1,800 m., *Rusby & Pennell 957* (F, G, W). Toledo, Santander, 1,700-1,900 m., *Killip & Smith 20061* (W). Mesa de los Santos, Santander, 1,000-1,500 m., *Killip & Smith 15054* (W). Icononzo, Cundinamarca, 1,400-1,800 m., *Pennell 2868* (W). El Convenio, west of San Lorenzo, Tolima, 1,000-1,200 m., *Pennell 3451* (W, G). Fusagasugá, *Holton 420* (P). Hills of Miraflores above Palmira, Cauca, 1,600 m., *Pittier 890* (W). San Andrés de la Sierra, Magdalena, 1,100-1,300 m., *Pittier 1705* (W). Highlands of Popayán, 1,600-2,000 m., *Lehmann B.T.395* (F, Y). El Pedregal and Juca, Popayán, 1,200-1,800 m., *Lehmann 8468* (F). Widely distributed in South and Central America.

Branches densely pilose-sericeous; leaves oblong to ovate, acute or obtuse, densely appressed-pilose; flower heads long-pedunculate, very densely many-flowered; calyx lobes oblong or ovate, usually obtuse; corolla purplish blue, 5 mm. long; fruit bright blue.

The original description of *Condalia lanceolata* agrees so well with the plant commonly known as *Coccocypselum canescens* that there is little doubt that the earlier name of Ruiz and Pavón should replace the species name *canescens*.

34. HIPPOTIS R. & P.

Hippotis albiflora Karst. Fl. Columb. 1: 33. *pl. 17*. 1858.

Type collected in the mountains east of Bogotá, at 1,000 m., *Karsten*.

A tree 9-12 m. high; leaves lanceolate or obovate-lanceolate, 15-20 cm. long, acuminate, sparsely appressed-pilose above, finely

striolate-nerved between the veins; flowers in axillary pedunculate 3-flowered cymes; calyx 3 cm. long, the limb spathaceous; corolla white, much exceeding the calyx, the limb 5-lobed.

35. PENTAGONIA Benth.

Pentagonia brachyotis Standl. Journ. Washington Acad. Sci. 17: 171. 1927. *Watsonamra brachyotis* Standl. Contr. U. S. Nat. Herb. 17: 443. 1914.

Boca Tai on Río Sinu, Bolívar, 50-80 m., in forest, *Pennell 4616* (Y). Also in Panama.

A small tree about 3.5 m. high; leaves petiolate, the petiole with large auricles at the base; leaf blades rhombic, 33-37 cm. long, obtuse at the base, deeply pinnatifid, minutely sericeous beneath along the veins; calyx 10-12 mm. long, the lobes obtuse; corolla red, the tube 3 cm. long, the lobes 5-6 mm. long.

Pentagonia magnifica Krause, Bot. Jahrb. Engler 40: 325. 1908. *Watsonamra magnifica* Standl. Contr. U. S. Nat. Herb. 17: 441. 1914.

Type from Río Timbiquí, *Lehmann 8886*.

A shrub or small tree 3 m. high, sparsely branched; leaves very shortly petiolate, obovate or obovate-oblong, 30-40 cm. long, acuminate, glabrous, finely striolate between the nerves; flowers in dense sessile axillary cymes; calyx tubular, 1.5 cm. long, red; corolla tubular, red, 2-2.5 cm. long, the lobes short, oblong, obtuse, reflexed; fruit baccate, globose, 12-15 mm. in diameter.

36. SOMMERA Schlecht.

Sommera Purdiei, sp. nov.—Ramuli graciles, teretes, ferrugineo-brunnei, glabri, internodiis brevibus elongatisve; stipulae anguste lanceolatae, 2.3 cm. longae, caducae, longiattenuatae, brunneae, glabrae; folia opposita, petiolo 5-8 mm. longo glabro; lamina obovata vel elliptica, 6-11.5 cm. longa, 3-5 cm. lata, acuta vel abrupte breviterque obtuso-acuminata, basi cuneato-acuta vel obtusiuscula, crasse membranacea, supra viridis, glabra, nervis non elevatis, subtus paullo pallidior, tantum ad nervos minute denseque sericea, costa nervisque lateralibus gracilibus, prominentibus, nervis lateralibus utroque latere c. 6, angulo acuto adscendentibus, leviter curvis vel fere rectis, prope marginem conjunctis, inter nervulos creberrime striolata; inflorescentiae axillares, cymosae vel subumbellatae, 3-5-florae, pedunculis 2-3 cm. longis sericeis, bracteis linearibus vel subulatis, pedicellis vix longioribus, pedicellis 1-3 mm. longis; hypanthium turbinatum 5 mm. longum basi acutum sericeum; calyx 5-partitus, lobis obovato-oblongis 6-8 mm. longis obtusis vel rotundatis glabratis persistentibus; corolla extus minute et subsparse sericea, tubo 8 mm. longo, crasso, lobis 5 oblongis obtusis 5 mm. longis; fructus immaturus ovoideus glabratus 12 mm. longus.—Colombia: Bogotá, *Purdie* (Gray Herb., type; duplicate in K). Without locality, *Goudot* (K).

37. SABICEA Aubl.

Sabicea ambigua, sp. nov.—Ramuli crassi adpresso-pilosuli vel glabrati, internodiis ut videtur brevissimis; stipulae magnae, multifidae, 4-8 cm. longae, laciniis numerosissimis anguste linearibus vel crasse filiformibus, interdum incrassatis, dense minuteque puberulis, inaequalibus; petiolus gracilis vel validus, 2-4.5 cm. longus, subteres vel angulatus, dense et minutissime adpresso-pilosulus vel glabratus, supra interdum late sulcatus; lamina membranacea, anguste oblanceolato-oblonga, 20-38 cm. longa, 6.5-12 cm. lata, abrupte acuminata, acumine anguste triangulari attenuato-acuminato, basin versus longissime sensimque attenuata, supra viridis, glabra, nervis manifestis sed non elevatis, subtus paullo pallidior, ad nervos costamque minute adpresso-pilosula, aliter glabra, minute albido-puncticulata, costa gracili elevata, nervis lateralibus utroque latere c. 20, gracilibus, elevatis, angulo lato adscendentibus, arcuatis, in marginem desinentibus, nervulis vix prominulis laxe reticulatis; inflorescentia densa multiflora sessilis vel brevissime pedunculata, floribus sessilibus vel breviter pedicellatis, bracteis elongatis anguste linearibus; calycis laciniae anguste lineares vel fere filiformes, 1.6-3.3 cm. longis, minute puberulae; bacca c. 7 mm. longa, oblonga vel crasse clavata, obscure 5-costata, glabrata; semina numerosissima ferruginea c. 0.3 mm. diam.—Colombia: Without definite locality, *Triana 1847* (Herb. Kew., type). Coteje, Río Timbiquí, November, 1898, *Lehmann B.T.519* (K).

The true position of this plant is quite uncertain. Evidently it is closely related to *Sabicea umbrosa* Wernh., but both these species are so unlike other members of the genus *Sabicea* that I was at first inclined to make them the basis of a new genus. After learning that one of them had been referred to *Sabicea* without question by Wernham, I decided to leave the two plants temporarily in that genus, until better material of them may be obtained. The leaves in both these species seem to me to be alternate, with a stipule opposite each leaf. Wernham, however, illustrates the type specimen of *S. umbrosa* with opposite leaves. I have not seen the type, but a second specimen of the same species which I have seen, probably a part of the type collection, seems to me to have alternate rather than opposite leaves, a condition almost unknown in the family Rubiaceae.

Sabicea asperula (Ball) Wernh. Monogr. Sabicea 30. 1914. *Manettia asperula* Ball, Journ. Linn. Soc. 22: 142. 1886.

Type from coast near Buenaventura, *Ball.*

A scandent shrub, the branches densely strigose; stipules broadly ovate or rounded; leaves oval, short-acuminate, 9-12 cm. long, 4-4.5 cm. wide, sparsely strigose above, beneath strigose, more densely so on the veins, the lateral veins 10 pairs or fewer; inflorescence

lax, 1.5 cm. broad, strigose, the peduncle 1.5-2 cm. long; bracts few, linear, not forming an involucre; calyx lobes 3-4 mm. long, usually spreading, linear-subsetaceous; corolla sparsely strigose, the tube 6 mm. long, the lobes lanceolate, acute, 2.5 mm. long, barbate at the apex; fruit sparsely spreading-pilose, 6 mm. long.

Sabicea camporum Sprague, Trans. & Proc. Bot. Soc. Edinb. 22: 434. 1904; Wernh. Monogr. Sabicea 50. *pl. 4, f. 5-9.* 1914.

Type from Cabuyaro, Río Meta, *Sprague 43.*

A suffrutescent erect herb 30-60 cm. high, the young branches densely fulvous-villous; leaves about 6 cm. long and 2.5 cm. wide, rough-pubescent above, whitish beneath and minutely arachnoid-tomentose; flowers in hirsute and tomentose sessile cymes, densely crowded; calyx lobes lanceolate; corolla tube 3-4 mm. long, the lobes 2 mm. long.

Sabicea cana Hook. Icon. Pl. *pl. 247.* 1840.

Between Yolombá and Cancán, Antioquía, 1,200-1,800 m., *Lehmann 4004* (W). San Roque, *Toro 1354* (Y). Also in Peru.

A scandent shrub, the stems arachnoid-tomentose; stipules ovate, obtusish, 8 mm. long and wide; leaves petiolate, broadly ovate, large, acute or obtuse, densely white-tomentose beneath, arachnoid above or glabrate; flowers sessile in dense sessile axillary heads, whitish-tomentose; calyx lobes triangular; corolla tomentose, the tube 4-5 mm. long, the lobes 2-3 mm. long.

Sabicea colombiana Wernh. Monogr. Sabicea 39. *pl. 12.* 1914.

Region of Santa Marta, 450 m., *H. H. Smith 1834* (F in part, M). Río Timbiquí, 400 m. or less, *Lehmann 9001* (Y). La Gallera, Micay Valley, Cauca, 1,100-1,300 m., in clearing, *Killip 7821* (W). El Convenio, Tolima, 1,000-1,200 m., edge of forest, *Pennell 3468* (W, G, Y). San Andrés de la Sierra, Magdalena, 1,100-1,300 m., *Pittier 1648* (W). Between Puerto Wilches and Puerto Santos, Santander, in forest, 1,100 m., *Killip & Smith 14853* (W, Y), *14857* (Y). Wernham reports the following: *Triana 681.* Ocaña, 1,170 m., *Schlim 697.* Cauca, 1,200 m., *Triana 1752.* Also in Venezuela and Panama.

A large scandent shrub, the branches strigose; stipules large, ovate, obtuse, reflexed; leaves elliptic or oval, acute or acuminate, strigose, especially beneath on the nerves, or glabrate; inflorescence lax, strigose, many-flowered, pedunculate or subsessile; bracts 2-3, ovate-lanceolate, acuminate, 7-8 mm. long, forming an involucre; calyx lobes linear-oblong, glabrate, 4-4.5 mm. long; corolla white, strigose, the tube 9 mm. long.

Sabicea glomerata Wernh. Monogr. Sabicea 50. 1914.

Type from Pilcuan, Barbacoas, at 875 m., *Triana 1756.* Villavicencio, 500 m., in thicket, *Pennell 1376* (W,Y).

A scandent shrub, the young branches densely yellow-tomentose, later glabrate; leaves broadly lanceolate or elliptic-oblong, 10-12 cm. long, 4.5-5 cm. wide, usually rounded at the base, short-acuminate,

sparsely rough-puberulent above, densely yellow-tomentose beneath, the petioles up to 13 mm. long; stipules broadly ovate, membranaceous, glabrous, short-acuminate, up to 14 mm. long and 12 mm. wide; flowers crowded in dense sessile axillary heads, nearly glabrous; calyx lobes oblong, subglabrous, 3-5 mm. long, 1 mm. wide; corolla white, about 7 mm. long, densely sericeous.

Sabicea novo-granatensis Schum. in Mart. Fl. Bras. 6[6]: 303. 1889.

Described from Villavicencio, Llano de San Martín, and Guaduas, *Karsten*. Reported by Wernham (Monogr. Sabicea 41. 1914) from Bogotá, Susumuco, 875 m., *Triana 1755*.

Leaves lanceolate to oval, 12-13 cm. long, 4-6.5 cm. wide, sparsely rough-strigillose above, pilose beneath on the veins, very obtuse at the apex, acute at the base, the petioles 2 cm. long; stipules oval, 7-10 mm. long, 5-12 mm. wide; inflorescence lax, the bracts ovate, foliaceous, subinvolucrate, the peduncle 2-2.5 cm. long, yellow-hispid, the pedicels elongate; calyx lobes broadly lanceolate, 6 mm. long and 2.5 mm. wide, spreading-hirsute; hypanthium densely sericeous-pilose; corolla densely hirsute, the tube 7 mm. long, the lobes 2 mm. long.

Sabicea Trianae Wernh. Monogr. Sabicea 62. 1914.

Type from Colombia, *Triana* 717.

A scandent shrub, the branches arachnoid-tomentose, finally glabrous; leaves elliptic, narrowed at each end, 8-9 cm. long, 3.5-4 cm. wide, sparsely strigose above along the costa, elsewhere glabrous or at first arachnoid and hirsute, beneath with similar but denser pubescence, the petiole arachnoid-tomentose, 5 mm. long; stipules 6 mm. long and 4 mm. wide, deflexed; flowers crowded in few-flowered heads 1.5 cm. broad; bracts few, forming an involucre; peduncle 3-4 mm. long; calyx lobes oval, acute, 9 mm. long, 4 mm. wide; ovary tomentose.

Sabicea umbrosa Wernh. Monogr. Sabicea 27. *pl. 1, f.* 1. 1914.

Type from Antioquía, in the deep shade of forest, at 900 m., *Kalbreyer 1837*. Without locality, *Kalbreyer* (K).

Suffrutescent, the stem procumbent, about 30 cm. long; leaves elliptic, acute at each end, about 27 cm. long and 15 cm. wide, pubescent beneath on the veins, the lateral nerves 15-22 pairs; petiole up to 25 cm. long; flowers in subsessile verticils, crowded, the bracts broad, divided into setae 2 cm. long or more; corolla glabrous, the tube 4 cm. long, the lobes oblong, subacute, 8 mm. long.

Sabicea villosa R. & S. Syst. Veg. 5: 265. 1819. *Schwenkfeldia villosa* Willd. ex R. & S., l. c., as syn. *Sabicea hirsuta* HBK. Nov. Gen. & Sp. 3: 417. 1820. *Schwenkfeldia hirsuta* Spreng. Syst. Veg. 1: 765. 1825.

Campo Alegre, in thickets on damp hillsides, 450 m., *H. H. Smith 1834* (F in part, W, G, P, Y). Wooded cliffs of Río Dagua,

Córdoba, El Valle, 80-100 m., *Killip 5080* (W, G). La Teta, Cauca, 1,000-1,300 m., *Lehmann 5090* (F). Widely distributed in tropical America.

A large scandent shrub, the branches hirsute; stipules broadly ovate or rounded, reflexed; leaves petiolate, elliptic-oblong or ovate, acuminate, hirsute; flowers sessile in few-flowered axillary heads; calyx lobes linear-lanceolate, up to 4 mm. long; corolla white, sparsely strigose, the tube scarcely 6 mm. long; fruit purple or violet, 1 cm. long.

Sabicea villosa R. & S., var. **adpressa** (Wernh.), comb. nov. *S. hirsuta* HBK., var. *adpressa* Wernh. Monogr. Sabicea 55. 1914.

Don Diego, border of clearing, near the coast, *H. H. Smith 2653* (F, W, M, P, S, Y.) Buenaventura, El Valle, on exposed cliffs at sea level, *Killip 11684* (W, G, Y). Puerto Wilches, Santander, in marshy land, 100 m., *Killip & Smith 14929* (W, Y). Widely distributed in tropical America.

Stems appressed-hispid, otherwise like the tropical form.

38. BERTIERA Aubl.

Bertiera guianensis Aubl. Pl. Guian. 180. *pl. 69.* 1775.

Angostura, Magdalena, *André 456* (K, Y). Reported from Bogotá by Schumann (in Mart. Fl. Bras. 6^6: 325. 1889), on the authority of Karsten. Widely distributed in tropical America.

A slender shrub; leaves short-petiolate, ovate-oblong or ovate-lanceolate, acuminate, appressed-pilose, 9-15 cm. long; flowers small, white, in terminal panicles; fruit a globose 10-costate berry 3.5 mm. long.

39. HAMELIA Jacq.

Hamelia brachystemon Wernh. Journ. Bot. 49: 216. 1911.

Ocaña, *Schlim 547* (K, type collection).

Leaves ternate, glabrate; corolla 1.5 cm. long, tubular; stamens not exceeding the middle of the corolla tube.

Hamelia lutea Rohr ex Smith in Rees, Cycl. 5: 17. 1811.

Santa Marta, near sea level, *H. H. Smith 1818* (F, W, G, M, P, Y). Widely distributed in tropical America.

A shrub; leaves opposite, elliptic, glabrate; corolla short, yellow, expanded above.

Hamelia odorata (H. & B.) Willd. ex R. & S. Syst. Veg. 5: 267. 1819 (as syn.). *Duhamelia odorata* H. & B. ex R. & S. Syst. Veg. 5: 267. 1819. *H. suaveolens* HBK. Nov. Gen. & Sp. 3: 414. 1820.

Type collected along the Río Magdalena near Garrapatas, Badillas, etc., *Bonpland.*

A shrub; leaves ternate or quaternate, nearly glabrous; flowers sessile or nearly so; corolla tubular, purplish.

Hamelia patens Jacq. Enum. Pl. Carib. 16. 1760. *H. erecta* Jacq., l. c. *Schoenleinia thyrsoidea* Miers, Proc. Roy. Hort. Soc. 4: 186. 1864.

Between Chinácota and La Esmeralda, Norte de Santander, 1,000-1,300 m., *Killip & Smith 20915* (W). Chinácota, 1,400 m., *Killip & Smith 20784* (W). Río Suratá Valley, Santander, 800-1,500 m., *Killip & Smith 16364* (W). Bucamaranga, Santander, 1,000 m., *Killip & Smith 16191* (W). East of Neiva, Huila, 800-1,000 m., *Rusby & Pennell 418* (Y). Turbaco, 150-200 m., *Pennell 4753* (Y). Brazuela de Perales, Antioquía, 150 m., *Pennell 3706* (G, Y). La Virginia, Líbano, Tolima, 1,100-1,400 m., *Pennell 3294* (Y). La Paila, *Holton 439* (Y), *435* (Y). Cuchilla, El Valle, 1,100-1,400 m., *Pennell, Killip & Hazen 8534* (G, Y). Guayabal, El Valle, 900 m., *Killip 8353* (G, Y). Salazar, *Kalbreyer 852* (K). Without locality, *Hartweg 1054* (K). Widely distributed in tropical America.

A shrub 1-3 m. high; leaves mostly ternate, pubescent or tomentose beneath; corolla tubular, orange-red.

The specific name *erecta* has priority of position, but it is perhaps preferable to use the long-established name *patens*.

Hamelia pedicellata Wernh. Journ. Bot. 49: 212. 1911. *H. tubiflora* Wernh., l. c.

Turbaco, 200-300 m., *Killip & Smith 14167* (W, Y). Santa Marta, at sea level to 600 m., *H. H. Smith 394* (F, G, M, P, Y), *1817* (F, G, W, M, P, Y), *1812* (K, Y). Río Frío, Santa Marta, *Walker 1274* (W, G, M). Barranquilla, *Bro. Elias 113* (W), *116* (W); *Bro. Paul 15* (W). Cartagena, *Bro. Heriberto 24* (W). Villavicencio, Intendencia Meta, 500 m., *Pennell 1570* (W, Y). Natagaima, Huila, 400 m., *Rusby & Pennell 1194* (W, Y). La Paila, *Holton 430* (G, P, Y), *435* (K, P). Barranquilla, August 30, 1852, *Holton* (K, Y, type collection of *H. tubiflora*). Medellín, *Toro 329* (Y). Gamarra, Magdalena, 50 m., *Rusby & Pennell 26* (Y). Buenavista, Caldas, 180 m., *Pennell & Rusby 64* (Y). Puerto Berrio, Antioquía, 140 m., *Rusby 4793* (Y). Santa Marta, *Purdie* (G). Lake Sapatoza, Magdalena Valley, *Allen 364* (K). Santa Marta, May, 1844, *Purdie* (K). Without locality, *Triana 1758* (K). Santa Marta, *Schlim 949* (K). Also in Venezuela.

A shrub; leaves mostly quaternate, nearly glabrous; corolla orange-red, 1.5 cm. long; flowers mostly pedicellate; berries red or purple.

Called "cresta de gallo" at Barranquilla.

40. HOFFMANNIA Sw.

Hoffmannia asperula Standl. Field Mus. Bot. 4: 280. 1929.

San Antonio, above Cali, Cauca, 1,900 m., *Pittier 767* (W, type). Dauro, *Toro 1137* (Y). La Palmilla, Quindío, *Goudot* (K).

A shrub, the branchlets villosulous; leaves opposite, petiolate, oblong-oblanceolate, 15-21 cm. long, long-acuminate, long-attenuate to the base, glabrous above, rough-puberulent beneath; cymes short-pedunculate, shorter than the petioles; calyx 1 mm. long, the lobes triangular, acutish, puberulent; corolla reddish yellow, sparsely puberulent, the tube 3 mm. long, the lobes oblong, obtuse, 2 mm. long.

Hoffmannia coronata Standl. Field Mus. Bot. 4: 282. 1929.

Tamesis, region of Medellín, *Toro 974* (Y, type).

Branchlets densely appressed-pilose; leaves opposite, short-petiolate, oblong-elliptic or oblong-obovate, 6-9 cm. long, acuminate, long-attenuate to the base, glabrous above, beneath paler and incurved-puberulent; cymes 2-3-flowered, long-pedunculate, the flowers pedicellate; calyx lobes linear, ciliate, 2-3 mm. long; corolla acute in bud, sparsely villosulous, the tube 1 mm. long, the lobes ovate-oblong, 5 mm. long; berries oval, 6 mm. long.

Hoffmannia dichroantha Standl. Field Mus. Bot. 4: 281. 1929.

In forest below Cascada Chorrón, south of Antizales, Bolívar, at 1,700-2,000 m., *Pennell 4418* (Y, type).

A shrub, the branchlets bifariously ferruginous-puberulent; leaves opposite, short-petiolate, oblong-lanceolate, 6-9.5 cm. long, long-acuminate, narrowed to the base, minutely appressed-puberulent beneath; cymes few-flowered, sessile or nearly so, the pedicels 1-2 mm. long; calyx scarcely 1 mm. long, the lobes ovate-triangular, obtuse, ciliolate; corolla red, glabrous, acute in bud, 3 mm. long.

Hoffmannia glabra Standl. Field Mus. Bot. 4: 281. 1929.

Valley of Charta, Santander, 2,000 m., *Killip & Smith 19034* (W, type; Y). Charta, 2,600 m., *Killip & Smith 19005* (W). Loso, Norte de Santander, 2,200-2,400 m., *Killip & Smith 20405* (W, Y). Southern slope of Mt. San Martín, Santander, 2,300-2,500 m., *Killip & Smith 19139* (W, Y). Above Fusagasugá, Cundinamarca, 1,800-2,300 m., *Pennell 2707* (Y). Antioquía, *Jervise* (K). Cape Corrientes, *Seemann 1075* (K). Barroblanco, 2,400 m., *André 1363* (K). Near Cartago, Cauca, *André 2416* (K). San Moreno, *André K.1105* (K).

A shrub 1-1.5 m. high, the branchlets glabrous; leaves opposite, slender-petiolate, elliptic or oblong-elliptic, 8-19 cm. long, long-acuminate, acute or acuminate and decurrent at the base, glabrous; cymes densely many-flowered, equaling or shorter than the petioles, sessile or pedunculate; calyx 1 mm. long, the lobes triangular, acute, usually ciliolate; corolla pale yellow, glabrous, obtuse in bud, the tube 4 mm. long, the lobes oblong or oval, 3 mm. long; berries oblong, 8 mm. long, black or wine-colored.

Hoffmannia Killipii Standl. Field Mus. Bot. 4: 282. 1929.

Dense forest, Río Santa Rita, Salento, Caldas, 1,600-1,800 m., *Killip & Hazen 8986* (W, type; G).

A tree, the branchlets glabrous; leaves opposite, long-petiolate, elliptic, 25 cm. long and 10-12 cm. wide, acute at the base, glabrous; cymes laxly many-flowered, equaling or shorter than the petioles, pedunculate, the pedicels 6-8 mm. long; calyx 0.7 mm. long, the lobes broadly rounded; berries globose-oval, 4-5 mm. long, glabrous, 2-celled.

Hoffmannia pauciflora Standl. Field Mus. Bot. 4: 280. 1929.

In damp forest near Valparaíso, region of Santa Marta, 1,050-1,500 m., *H. H. Smith 1814* (F, type; G, K, M, P, Y). Without locality, *Moritz 843* (W). Moist woods above Mancha, Santa Marta, May, 1844, *Purdie* (K). Near San Sebastián, Santa Marta, June, 1844, *Purdie* (K).

A slender shrub 1-2.5 m. high, the branchlets villosulous or puberulent; leaves opposite, slender-petiolate, oblong-elliptic to oblanceolate-oblong, 8-13.5 cm. long, short-acuminate, acuminate and decurrent at the base, glabrous above, minutely villosulous beneath along the nerves; cymes 3-7-flowered, umbelliform, short-pedunculate, shorter than the petioles, the pedicels 2-7 mm. long; calyx scarcely 1 mm. long, the lobes broadly triangular, acutish; corolla whitish, acutish in bud, glabrous or sparsely pilose, the tube 2 mm. long, the lobes oblong, 4-4.5 mm. long, acutish; fruit oblong, 4-7 mm. long, glabrous.

Hoffmannia triosteoides Standl. Field Mus. Bot. 4: 279. 1929.

Western slope of Peña Blanca, near Charta, Santander, in dense woods, 2,500 m., *Killip & Smith 19265* (W, type; Y). Charta, 2,000-2,600 m., *Killip & Smith 19314* (W, Y), *17449* (W), *19015* (W, Y). Southern slope of Mt. San Martín, near Charta, 2,300-2,500 m., *Killip & Smith 19147* (W), *19141* (W). Between Piedecuesta and Las Vegas, Santander, 2,000-2,500 m., *Killip & Smith 21141* (W, Y). Loso, Norte de Santander, 2,200-2,400 m., *Killip & Smith 20434* (W). California, Santander, 2,200 m., *Killip & Smith 17092* (W). Río Suratá Valley, above Suratá, Santander, 2,000-2,300 m., *Killip & Smith 16597* (W, Y).

A shrub 0.6-1.8 m. high, the branchlets densely villous; leaves opposite, petiolate, elliptic to oblong-obovate, 5-19 cm. long, abruptly acuminate, abruptly acuminate or usually long-decurrent at the base, green above and sparsely villous, paler beneath and densely villous; cymes subsessile, densely few- or many-flowered, shorter than the petioles, the pedicels 2 mm. long or less; calyx lobes linear, 1.5-2 or sometimes 6 mm. long, villosulous; corolla white, acutish in bud, sparsely villous, the tube 1.8 mm. long, the lobes lance-oblong, 6 mm. long; berries red, oval, 5-7 mm. long, sparsely villous.

Hoffmannia viridis Rusby, Descr. N. Sp. S. Amer. Pl. 134. 1920.

Ravine in mountain forest, Don Amo Estate, region of Santa Marta, 900 m., *H. H. Smith 2649* (Y, type).

A glabrous shrub 1.5 m. high; leaves long-petiolate, oblong-elliptic, 15-20 cm. long, 6-8 cm. wide, abruptly acuminate; inflorescence lax, few-flowered, slender-pedunculate, equaling or shorter than the petioles; pedicels slender, 4-6 mm. long; calyx lobes triangular, acute; corolla in bud abruptly acuminate.

In the original description the lower leaf surface is described as "very sparsely and minutely pilose." It is really glabrous and marked with numerous short pale raphids.

41. RARITEBE Wernh.

Raritebe palicoureoides Wernh. Journ. Bot. 55: 337. 1917.

Type material from Susumino at 390 m. and Villavicencio at 900 m., *Triana 1825*.

A shrub, the young branches somewhat hirtellous, especially about the nodes; stipules lanceolate, 5 mm. long, acuminate; leaves elliptic, 12-17 cm. long, 4-6 cm. wide, acuminate at each end, glabrous; flowers cymose-corymbose, the inflorescence many-flowered, pedunculate, hirtellous; calyx glabrous, the 5 teeth minute; corolla glabrous, the tube 5-6 mm. long, the lobes narrowly oblong, 3 mm. long, obtuse; fruit 2-celled, glabrous, 3-4 mm. long.

This is the only species of the genus known heretofore, but the plant described below seems to be congeneric.

Raritebe viburnoides, sp. nov.—Arbor, ramulis gracilibus teretibus dense adpresso-hirsutis, vetustioribus ferrugineo-brunneis, internodiis elongatis; stipulae anguste triangulares, longiattenuatae, 10-14 mm. longae, adpresso-pilosae, tenues, brunneae, erectae et adpressae, persistentes; folia opposita, petiolo 2-3 mm. longo setuloso-piloso; lamina ovata vel elliptico-ovata, 6-8 cm. longa, 3-4 cm. lata, acuminata, basi late rotundata, papyracea, supra viridis, lucida, ad costam hispidula, nervis subimpressis, subtus lucida, ad nervos strigosa, aliter glabra, costa gracili elevata, nervis lateralibus utroque latere c. 6, angulo acuto adscendentibus, prominentibus, subarcuatis, remote a margine conjunctis, nervulis prominulis laxe reticulatis; inflorescentia terminalis, cymoso-corymbosa, dense multiflora, c. 2 cm. longa et 4 cm. lata, trichotoma, ramulis adpresso-pilosis patentibus, floribus sessilibus secundis; bracteae 1.5-4 mm. longae lineares vel subulatae; hypanthium obovoideum 1 mm. longum fere glabrum; calyx 1.5 mm. longus profunde 5-lobus, laciniis lineari-subulatis acutis recurvis sinu lato separatis; corolla alba, infundibuliformis, extus glabra, 5-5.5 mm. longa, tubo crasso superne paullo ampliato, lobis 5 ovatis acuminatis; bacca globosa 4-5 mm. longa sparse strigillosa 2-locularis; semina minuta angulata.—Colombia: In forest, La Gallera, Micay Valley, Cordillera Occidental, Dept. El Cauca, alt. 1,900-2,000 m., July 1, 1922, *Ellsworth P. Killip 7934* (U. S. Nat. Herb. No. 1,140,960, type; duplicate in G).

42. POSOQUERIA Aubl.

Posoqueria latifolia (Rudge) R. & S. Syst. Veg. 5: 227. 1819. *Solena latifolia* Rudge, Pl. Guian. 1: 26. 1806. *Tocoyena Mutisii* HBK. Nov. Gen. & Sp. 3: 411. 1820. *T. longifolia* HBK., l. c. *T. macrophylla* HBK. Nov. Gen. & Sp. 3: 412. 1820. *Stannia grandiflora* Karst. Fl. Columb. 1: 31. *pl. 16.* 1859. *P. platysiphonia* Rusby, Descr. N. Sp. S. Amer. Pl. 132. 1920.

Atrato and Iruandó, December, 1857, *Schott* (F). Villavicencio, 525 m., *Pennell 1488* (Y). Near Valparaíso, Santa Marta, 1,200 m., *H. H. Smith 1655* (F, W, M, P; Y, type of *P. platysiphonia*). Río Boquilla, Salento, Caldas, 1,600-1,900 m., *Killip & Hazen 8794* (W). Gorgona Island, *Seemann* (G). Without locality, *Purdie* (P). Honda, *Ariste-Joseph A382* (W). San Andrés de la Sierra, 1,100-1,300 m., *Pittier 1699* (W). Mountains of New Granada, *Purdie* (G). Honda, Tolima, *Ariste-Joseph A747* (W). Without locality, *Bruchmuller* (K). Plains of Maragusta, April, 1846, *Purdie* (K). Ocaña, *Schlim 682* (K). Types of *T. Mutisii* and *T. longifolia* from Colombia, *Mutis;* type of *T. macrophylla* collected along the banks of the Río Magdalena between Mompox and El Peñón, and near Honda, *Bonpland.* The species is widely distributed in tropical America.

A glabrous tree, sometimes 6 m. high; leaves mostly oval or oblong and 8-20 cm. long, acute or short-acuminate, coriaceous; flowers white, in dense terminal cymes; corolla tube slender, 13-18 cm. long; fruit globose, 4-5 cm. in diameter, yellow, edible, full of large seeds.

"Narciso de monte" (*Purdie*); "cachaco" (Villavicencio); "churumbelo" (Cartagena). Called in Panama "borajo," "boca vieja," "fruta de mono," "huevo de mono," and "fruta de murciélago." The tree is a very showy one in flower. *P. platysiphonia* is distinguishable only by the broad corolla tube, and I suspect that this had its origin only in heavy pressure during the drying of the specimens. *Killip & Hazen 8794* is a fruiting specimen, remarkable for its broad rounded leaves. Flowering material may show it to be a distinct species.

Posoqueria maxima, sp. nov.—Ramuli crassi subteretes glabri; stipulae rotundato-ovatae, apice rotundatae, 27 mm. longae et 20 mm. latae, glabrae, parallele venosae, deciduae; petiolus crassus 2-3 cm. longus; lamina suborbicularis, subcoriacea, c. 28 cm. longa et 25 cm. lata, basi late rotundata, glabra, costa nervisque supra vix elevatis subtus prominentibus, nervis lateralibus utroque latere c. 8, angulo acuto adscendentibus, gracilibus, arcuatis, prope marginem conjunctis; calyx 2 mm. longus brevissime lobatus, lobis late rotundatis; corolla extus glabra, tubo gracili 29 cm. longo, basi 3 mm. lato, superne 7 mm. lato, lobis 5 anguste oblongis, apice rotundatis, reflexis, 4-4.5 cm. longis, 1 cm. latis, intus minute papil-

losis; antherae exsertae lineares acuminatae 12 mm. longae.—Colombia: "New Granada," *Purdie* (Gray Herb., type).

Although the single specimen seen is not an altogether satisfactory one, it seems to represent a species clearly distinct. From *P. latifolia* it differs in the large leaves and stipules and very long corolla; from *P. longiflora* Aubl. in the broad leaves and stipules. The flowers are even larger than is usual in *P. longiflora*.

Posoqueria Spraguei Wernh. Kew Bull. 1914: 66. 1914.

Type from San José, in a creek of the Río Putamayo, Caquetá District, *Sprague*.

A glabrous shrub; leaves oval, 25 cm. long, 12 cm. wide, very shortly acuminate; corolla tube more than 23 cm. long.

Perhaps only a form of *P. latifolia*.

Posoqueria velutina, sp. nov.—Ramuli validi subteretes, novellis dense velutino-puberulis, vetustioribus ochraceis; stipulae 4-5 mm. longae, late ovato-triangulares, obtusae, puberulae, ciliolatae; folia opposita, petiolo crasso 4-6 mm. longo supra sulcato puberulo; lamina coriacea, late elliptica vel rotundato-elliptica, rarius oblonga, 9-11 cm. longa, 5.5-8 cm. lata, apice obtusa vel subrotundata, basi obtusa vel abrupte breviterque angustata, supra flavo-viridis, glabra, costa nervisque manifestis sed non elevatis, subtus paullo pallidior, dense velutino-puberula, costa crassa prominente, nervis lateralibus utroque latere c. 7, gracilibus, prominentibus, angulo acuto adscendentibus, nervulis obsoletis; cymae pedunculatae pauciflorae, floribus longipedicellatis, pedicellis minute puberulis; calyx 2-3 mm. longus glaber, lobis late ovatis obtusis ciliolatis; corollae tubus 6-7 cm. longus, 3-4 mm. latus, extus sparse puberulus vel fere glaber, obis oblongis obtusis fere 1.5 cm. longis; antherae c. 8 mm. longae acuminatae furfuraceo-strigosae.—Colombia: Salgar, region of Medellín, July 20, 1928, *Rafael A. Toro 1257* (Herb. N. Y. Bot. Gard., type).

The other Colombian species of this genus have glabrous leaves and flowers.

43. TOCOYENA Aubl.

Tocoyena foetida Poepp. & Endl. Nov. Gen. & Sp. 3: 25. *pl. 129*. 1845.

Reported by Schumann (in Mart. Fl. Bras. 6^6: 346. 1889) from Maypures, *Spruce 3582*. Also in Brazil.

A shrub or small tree, the branchlets pilose with appressed or spreading hairs; leaves petiolate, oblong-lanceolate or obovate-oblong, 15-35 cm. long, acuminate, acute at the base, subtomentose and scabrous above, beneath softly pubescent; inflorescence terminal, subcapitate, sessile, few-flowered; calyx lobes subulate, very acute, erect, short-villous; corolla ochroleucous, 18-20 cm. long, the tube very slender, the lobes ovate-oblong, pubescent outside, 2.5-3 cm. long.

44. SPHINCTANTHUS Benth.

Sphinctanthus polycarpus (Karst.) Hook. f. ex Schum. in Mart. Fl. Bras. 6[6]: 354. 1889. *Conosiphon polycarpus* Karst. Fl. Columb. 2: 95. *pl. 149*. 1865.

Type from the Río Meta, at 300-400 m., *Karsten*.

A shrub; stipules triangular, acute; leaves petiolate, obovate-lanceolate, acuminate, attenuate at the base, glabrous, subcoriaceous, 18 cm. long, 5-6 cm. wide; flowers terminal, short-pedicellate, glomerate-cymose, about 2.5 cm. long, greenish-white; calyx 5-6-dentate; corolla funnelform, the tube elongate, minutely sericeous, the lobes lanceolate, acute, half as long as the tube; fruit oval, as large as a walnut, fleshy, many-seeded.

45. RANDIA L.

Randia aculeata L. Sp. Pl. 1192. 1753. *R. mitis* L., l. c. *R. latifolia* Lam. Encycl. 3: 24. 1789. *R. obovata* HBK. Nov. Gen. & Sp. 3: 409. 1818, not R. & P. 1799.

Santa Marta, on seashore, *H. H. Smith 1811* (F, G, W, P); alt. 75 m., *H. H. Smith 1867* (F, W, P), *2400* F, W, P). Girardot, Cundinamarca, 350-400 m., *Rusby & Pennell 90* (F, G, W, Y). Tenerife, *André 207* (K, Y). Fusagasugá, *André 1608* (K, Y). Río Saldaña to Natagaima, 400-450 m., *Rusby & Pennell 248* (Y). Llano de Ibagué, *Holton 411* (Y). Type of *R. obovata* collected at the mouth of the Sinu, *Bonpland*. The species is widely distributed in the West Indies, Central America, and Mexico.

A very spiny shrub; leaves mostly obovate or rounded-obovate and 2-6 cm. long, glabrous or nearly so; flowers perfect, terminal, solitary or clustered; corolla 6-8 m. long, white, the throat barbate; fruit globose, 6-12 mm. in diameter, the pulp blackish and full of large seeds.

The name *Randia mitis* precedes *R. aculeata* on the page, but DeCandolle in uniting the two Linnaean species employed the name *R. aculeata*, which has been used by most subsequent authors.

Randia formosa (Jacq.) Schum. in Mart. Fl. Bras. 6[6]: 342. 1889. *Mussaenda formosa* Jacq. Enum. Pl. Carib. 16. 1760.

Type from Cartagena, *Jacquin*. Cartagena, *Bro. Heriberto 111* (W), *224* (W). Usiacuri, 250 m., *Bro. Elias 304* (W). Barranquilla, *Bro. Elias 345* (W). San Martín de Loba, Bolívar, 100 m., *Curran 180* (W). Buenavista, Bolívar, 100 m., *Pennell 3975* (W, Y). Santa Marta, *Purdie* (K). Cartagena, Turbaco, *Goudot* (K). Orocné, Río Meta, 100-400 m., *Lehmann 8750* (K). Puerto Wilches, *Rusby & Pennell 4804* (Y). Ranging to Peru and Brazil, Panama, and the West Indies.

An unarmed shrub; leaves mostly ovate or elliptic and 3-7 cm. long, puberulent or appressed-pilose beneath; flowers perfect,

terminal, solitary, sessile; corolla white, the slender tube 5-10 cm. long; fruit oval, 2-3 cm. long.

Randia Gaumeri Greenm. & Thomps. Ann. Mo. Bot. Gard. 1: 410. 1915.

Santa Marta, 30 m., *H. H. Smith 1717* (F, W, P). Hills above Santa Marta Bay, June, 1916, *Curran* (W). Also in Yucatan.

A very spiny shrub; leaves cuneate-orbicular, small, glabrous, ciliolate, blackening when dried; flowers perfect, terminal, sessile; corolla 5-6 mm. long, the throat glabrous.

It may be that more ample material will reveal differences between the Colombian and Yucatan plants, but none are apparent in the several specimens now at hand.

Randia spinosa (Jacq.) Karst. Fl. Columb. 2: 128. 1869. *Mussaenda spinosa* Jacq. Sel. Stirp. 70. 1763. *Gardenia armata* Sw. Prodr. 51. 1788. *Mussaenda pubescens* HBK. Nov. Gen. & Sp. 3: 410. 1818. *M. nitida* HBK. Nov. Gen. & Sp. 3: 410. 1818. *Gardenia Humboldtiana* R. & S. Syst. Veg. 5: 243. 1825. *M. Humboldtiana* Steud. Nom. Bot. 540. 1821. *G. pubescens* Bartl. ex DC. Prodr. 4: 387. 1830, as syn. *R. armata* DC. Prodr. 4: 387. 1830. *R. nitida* DC., l. c. *R. dioica* Karst. Linnaea 30: 153. 1859-60. *R. hondensis* Karst. Linnaea 30: 154. 1859-60. *Basanacantha spinosa* Schum. in Mart. Fl. Bras. 6[6]: 376. 1889. *B. spinosa* var. *nitida* Schum., op. cit. 378. 1889. *Basacantha dioica* Hook. f. ex Ind. Kew. 277. 1895.

Type from Cartagena, *Jacquin*. Cartagena, *Schott 1* (F); *Bro. Heriberto 123* (W). San Martín de Loba, Bolívar, *Curran 98* (W). Opposite Boca Carare, Antioquía, 125 m., *Pennell 3826* (W, Y). Upper Río Lebrija Valley, Santander, 400-700 m., *Killip & Smith 16299* (W, Y). Panche, *André 1689* (K, Y). Turbaco, Bolívar, 200-300 m., *Killip & Smith 14697* (Y). Type of *M. nitida* from Turbaco, *Bonpland*. Type of *R. hondensis* from the Magdalena Valley at 260 m., *Karsten*. Type of *R. dioica* collected in Colombia by Karsten. The species is widely distributed in tropical America.

A spiny shrub or small tree; leaves large, usually pubescent, at least beneath; flowers dioecious; corolla white or yellowish, glabrous, the tube about 2.5 cm. long; fruit oval or subglobose, 2.5-3.5 cm. long.

"Manangolo" (*Curran*).

46. GENIPA L.

Genipa americana L. Syst. Nat. ed. 10. 931. 1759.

Santa Marta, *H. H. Smith 2646* (F, W, M, P, Y); *Purdie* (P). San Andrés de la Sierra, Magdalena, *Pittier 1703* (W). Carare, *André 320 bis* (K). La Paila, *Holton 441* (Y). Without locality, *Lehmann B.T.912* (Y). Widely distributed in tropical America.

A large or medium-sized tree; leaves large, obovate, short-petioled, glabrous; flowers yellowish white, 2-4.5 cm. long, in small terminal cymes; fruit globose, brownish, 6-7 cm. in diameter, the pulp filled with numerous large compressed seeds.

Genipa caruto HBK. Nov. Gen. & Sp. 3: 407. 1820. *G. americana* var. *caruto* Schum. in Mart. Fl. Bras. 6[6]: 352. 1889.

Santa Marta, *H. H. Smith 93* (F, W, P). Orocné, Río Meta, 100-400 m., *Lehmann 8748* (F). Widely distributed in tropical America.

Differing from *G. americana* in the dense pubescence of the under surface of the leaves.

Called "jagua" in Panama; "caruto" in Venezuela; "bi," "bicito," and "tutumillo" in Bolivia; "jenipapa," "jenipabo," in Brazil; "tapuripa" in Surinam. This tree and the preceding one are common and widely dispersed in tropical America. Their wood is strong and resistant, flexible, whitish, tinged with gray. It is used for many purposes. The bark is rich in tannin. The scant pulp of the fruit is edible, but not very palatable, and its juice is sometimes fermented to produce an intoxicating beverage. Upon cloth the juice produces a permanent brownish or blackish stain, and it was much used by the Indians for dyeing. It was employed commonly, and is still utilized in some regions, for painting the body, giving almost the same general effect as tattooing.

47. DUROIA L. f.

Duroia genipoides Hook. f. in B. & H. Gen. Pl. 2: 82. 1873.

Type from Maypures on the Orinoco, *Spruce 3624*.

Branchlets glabrous; leaves ternate, short-petiolate, obovate to oblong, 9-12 cm. long, shortly obtuse-acuminate or obtuse, cuneate at the base, coriaceous, glabrous; fruits long-pedicellate, narrowly oblong, 2-3 cm. long, 1.5 cm. in diameter, rounded at base and apex.

Duroia hirsuta (Poepp. & Endl.) Schum. in Mart. Fl. Bras. 6[6]: 367. 1889. *Amaioua hirsuta* Poepp. & Endl. Nov. Gen. & Sp. 3: 25. *pl. 230*. 1845. *Schachtia dioica* Karst. Fl. Columb. 1: 89. *pl. 44*. 1860.

Type of *S. dioica* from Villavicencio, *Karsten*. Villavicencio, 450 m., *Pennell 1470* (Y). Without locality, *Triana* (K). Also in Brazil.

A shrub or small tree 3-4.5 m. high; leaves obovate-oblong, cuspidate-acuminate, hispid, 18-25 cm. long; flowers in dense terminal cymes; corolla 2.5 cm. long; fruit baccate, ellipsoid-globose, 3 cm. long.

Called "turma de mico" in Colombia. The internodes of the branches often are inflated and inhabited by ants.

Duroia Spraguei Wernh. Kew Bull. 1914: 66. 1914.

Type from Mocoa, Caquetá District, *Sprague 369*.

A tree; leaves thin, broadly oblanceolate, about 23 cm. long and 10 cm. wide, cuspidate, hispid beneath; flowers subsolitary; corolla sericeous; ovary densely sericeous-hispid.

Vernacular name, "taruquilla."

48. AMAIOUA Aubl.

Amaioua guianensis Aubl. almost certainly occurs in Colombia, because it is known from Panama and the Guianas, but no Colombian specimens have been seen. The fruit is called "amajoua" or "graines a Tatou" in French Guiana; "canella de neado," "pimentao," and "marmelada brava" in Brazil; "madroño torcido" in Panama.

49. ALIBERTIA A. Rich.

Alibertia edulis A. Rich. Mém. Soc. Hist. Nat. Paris 5: 234. *pl. 21, f. 1.* 1830.

Estrella, Caño Papayal, *Curran 336* (W). Without locality, *Triana 1841* (K). Widely distributed in tropical America.

A glabrous shrub or tree with lance-oblong or ovate-lanceolate, acute or acuminate leaves; flowers dioecious, white, sessile, solitary or fascicled; fruit a globose berry 2.5 cm. in diameter.

"Guayabo Perú" (*Curran*); "perita" (Schumann).

Alibertia Garapatica Schum. in Mart. Fl. Bras. 6^6: 384. 1889. *Garapatica edulis* Karst. Fl. Columb. 1: 57. *pl. 28.* 1858, not *A. edulis* A. Rich. 1830.

Type collected near Tomarazón and Chiriguana, region of Santa Marta, *Karsten.* Santa Marta, *H. H. Smith 798* (F, M, P, S). Sahagún, Bolívar, *Pennell 4087a* (Y). Also in Panama.

A glabrous shrub or small tree; leaves short-petiolate, elliptic or oblong-elliptic, 7-10 cm. long, short-acuminate; staminate flowers whitish, in dense terminal clusters, the pistillate in terminal clusters of 5 or more; fruits small, globose.

"Garapatica."

Alibertia hexagyna Karst. Linnaea 30: 144. 1859-60.

Type from inundated banks of the Río Meta, *Karsten.*

A shrub 2-3 m. high; leaves lanceolate, coriaceous, glabrous, pilose beneath in the axils of the veins; stipules lanceolate, acute, persistent; flowers terminal, the staminate cymose, white; calyx

limb 4-5-dentate; corolla sericeous; pistillate flowers solitary, the calyx 5-dentate, the teeth linear; fruit fleshy, many-seeded.

"Perita."

Alibertia pedicellata Wernh. Kew Bull. 1914: 66. 1914.

Type from Mocoa, Caquetá District, *Sprague 362*. Without locality, *Triana 1833* (K, Y).

A glabrous tree; leaves oblanceolate, obovate, or elliptic, acute or acuminate, 16-20 cm. long; flowers short-racemose; fruit ellipsoid, 2.5 cm. long.

50. RETINIPHYLLUM H. & B.

Retiniphyllum concolor (Spruce) Muell. Arg. in Mart. Fl. Bras. 6^5: 8. 1881. *Commianthus concolor* Spruce ex Benth. Journ. Bot. 5: 235. 1853.

Reported by Mueller (l. c.) from San Carlos on the Río Negro, *Spruce 3535*. Also in Brazil.

A shrub 3 m. high; leaves short-petiolate, oblong-elliptic, 9-18 cm. long, cuspidate, acute at the base, minutely scabrous beneath on the veins, the lateral veins 11-16 pairs; flowers in terminal racemes, the flowers pedicellate; calyx obsoletely 5-dentate; corolla 3 cm. long, puberulent, the lobes scarcely half as long as the tube; fruit baccate, 6 mm. long, 5-angled.

Retiniphyllum truncatum Muell. Arg. in Mart. Fl. Bras. 6^5: 11. 1881.

Type collected along the Río Negro above the mouth of the Río Casiquiare, *Spruce 3131*.

Glabrous; leaves lance-elliptic, subacute at each end, 6-8 cm. long, the lateral veins 10-11 pairs; flowers in terminal pedunculate spikes longer than the leaves, the flowers sessile; calyx minutely 5-denticulate; corolla 15-17 mm. long.

51. MACHAONIA H. & B.

Machaonia acuminata H. & B. Pl. Aequin. 1: 101. *pl. 29*. 1808; Schum. in Mart. Fl. Bras. 6^6: 102. *pl. 89, f. 1*. 1888.

Garzón, Río Madalena, 400-1,000 m., *Lehmann 8648* (F, Y). Magdalena Valley, *Goudot* (K). Without locality, *André K.1106* (K). Also in Ecuador and Brazil.

A small tree; leaves densely pubescent beneath; sepals ovate, obtuse; fruit pubescent.

"Espuela de gallo."

Machaonia grandis Wernh. Journ. Bot. 51: 220. 1913.

Type from Choró, Barbacoas, *Triana 1625*.

A shrub; leaves oval, short-acuminate, 8 cm. long, glabrous; calyx lobes oblong, obtuse, ciliate; fruit glabrous.

Machaonia Ottonis (Schum.) Urban, Symb. Antill. 5: 511. 1908. *Machaonia spinosa* var. *Ottonis* Schum. in Mart. Fl. Bras. 6[6]: 100. 1888.

Without locality, *Wagner* (G); *Wagner 35* (W); *Linden 1546* (G). Orocné, Río Meta, 100-500 m., *Lehmann 8747* (F). Río Saldaña to Natagaima, Huila, 400 m., *Rusby & Pennell 251* (G, Y). Also in Brazil.

A shrub, the branchlets often with spinose tips; leaves ovate or elliptic, acute or acuminate, 3-6 cm. long, glabrous; flowers small, in large corymbiform panicles; calyx lobes suborbicular; fruit densely pubescent.

52. GUETTARDA L.

Guettarda cordata HBK. Nov. Gen. & Sp. 3: 420. 1820.

Type from Cuesta de Tolima, *Bonpland*

Leaves ovate-elliptic, deeply cordate at the base, rounded at the apex, whitish-tomentose beneath.

Guettarda crispiflora Vahl, a West Indian species, is reported from Bogotá by Kunth (HBK. Nov. Gen. & Sp. 3: 420. 1820), but the record doubtless is based upon specimens of some other species.

Guettarda discolor Rusby, Descr. N. Sp. S. Amer. Pl. 134. 1920.

Mountain forest, Sierra de Líbano, region of Santa Marta, 1,650 m., *H. H. Smith 1809* (Y, type). Also in Venezuela.

A tree; leaves elliptic to lance-oblong, 7-10 cm. long, 3-5 cm. wide, abruptly acuminate at each end, minutely grayish-tomentose beneath, puberulent along the nerves; inflorescences furcate, the branches simple, the flowers conspicuously secund; corolla tube 12 mm. long.

Guettarda malacophylla Standl. Field Mus. Bot. 4: 288. 1929.

On Río Magdalena, Neiva and Timana, 400-1,200 m., *Lehmann 8710* (Y, type). Without locality, *Goudot* (K).

A tree 7.5 m. high, the young branchlets densely pilose; leaves very shortly petiolate, oval to obovate-elliptic, 3.5-6 cm. long, short-acuminate, obtuse or broadly rounded at the base, densely velvety-pilose on both surfaces with spreading hairs; flowers cymose-capitate, the cymes few-flowered, nearly sessile; hypanthium terete, tomentose; corolla densely sericeous, the tube 7-8 mm. long.

Guettarda hirsuta (R. & P.) Pers. has been reported (HBK. Nov. Gen. & Sp. 3: 420. 1820) from Ibagué and Cuesta de Tolima. The species is a Peruvian one, and probably does not occur in Colombia.

Guettarda ocoteaefolia Standl. Field Mus. Bot. 4: 289. 1929.

Near Panche, 1,550 m., *André 1670* (F, type; G, K, Y). Fusagasugá, 1,800 m., *André 1448* (K, Y).

Young branchlets densely strigillose; leaves petiolate, oblanceolate-oblong or oblong-obovate, 8-18 cm. long, obtuse or nearly rounded and abruptly short-acuminate at the apex, sometimes acute, narrowed to the acute or obtuse base, scaberulous or glabrate above, paler beneath, sparsely and minutely strigillose or glabrate; cymes dense, few-flowered, long-pedunculate; hypanthium tomentose; corolla densely grayish-sericeous, the tube 15 mm. long, the 5 lobes oval, 5-6 mm. long.

Guettarda odorata (Jacq.) Lam. Ill. Gen. 2: 219. 1793. *Laugeria odorata* Jacq. Sel. Stirp. Amer. 64. *pl. 177, f. 21.* 1763.

Type from Cartagena, *Jacquin.* Cartagena, *Bro. Heriberto 345* (W). Without locality, *Funck & Schlim 623* (Y). Also in Venezuela.

A shrub or small tree; leaves mostly elliptic or rhombic-obovate, 3-6 cm. long, acute or short-acuminate, appressed-pilose beneath along the veins; corolla tube 1-1.5 cm. long; fruit globose, 6 mm. in diameter.

Guettarda roupalaefolia Rusby, Descr. N. Sp. S. Amer. Pl. 135. 1920.

Three miles east of Masinga; Minca, region of Santa Marta, 600 m., *H. H. Smith 441* (Y, type; F, W, G, M, P, S). Trail from Río Frío to San Andrés de la Sierra, Magdalena, 200 m., *Pittier 1717* (W).

A tree; leaves long-petioled, broadly ovate or rounded-elliptic, 10-20 cm. long, obtuse to acuminate, grayish-tomentose beneath; corolla pinkish, the tube 12 mm. long.

Guettarda Rusbyi Standl. Field Mus. Bot. 4: 288. 1929.

Rocky hill at gorge above Natagaima, Huila, 450-500 m., *Rusby & Pennell 1154* (F, type; W, Y, G, M). Along stream, Espinal to Cuamo, Tolima, 400 m., *Pennell & Rusby 200* (Y). Piedras, 600 m., *André 1940* (F, K, Y), *1898* (Y, K). Without locality, *Funck & Schlim 644* (Y); *Lehmann 8677* (Y, G, K). Above Honda, *Holton 409* (K, Y). Without locality, *Lehmann B.T.905* (G, K); *Goudot* (K); *Triana 1748* (K), *1746* (K).

A tree, the young branchlets strigillose; leaves short-petiolate, ovate-elliptic to oblong-elliptic, 5-12.5 cm. long, acuminate, rounded or obtuse at the base, scaberulous or glabrate above, strigillose or rarely puberulent beneath along the nerves; cymes dense, few-flowered, long-pedunculate; corolla tube 10-13 mm. long, densely sericeous, the lobes oval, 3 mm. long; fruit oval, 7-12 mm. long, 4-celled.

Guettarda sabiceoides Standl. Field Mus. Bot. 4: 289. 1929.

Forests of the Rio Palacé, highlands of Popayán, 1,500-1,800 m., *Lehmann B.T.950* (K); *Triana 1749* (K). La Gallera, Micay Valley, Cauca, in forest, 1,400 m., *Killip 7699* (W, G).

Young branchlets strigose and puberulent; leaves slender-petiolate, oblong-elliptic or ovate-elliptic, 10-15 cm. long, abruptly acuminate, abruptly decurrent at the base, glabrous above, minutely sericeous beneath along the nerves; inflorescences furcate, pedunculate, the branches 1-2 cm. long, densely many-flowered, the flowers secund; hypanthium 5-angled; corolla 6-7 mm. long, reflexed-pilose; drupe 5 mm. long, 5-celled.

53. CHOMELIA Jacq.

Chomelia spinosa Jacq. Sel. Stirp. Amer. 18. *pl. 13*. 1763. *Anisomeris spinosa* Schum. in E. & P. Nat. Pflanzenfam. 4[4]: 98. 1891. *C. brachyloba* Standl. Contr. U. S. Nat. Herb. 18: 136. 1916. *C. longicaudata* Rusby, Bull. Torrey Club 52: 139. *f. 1*. 1925.

Type from Cartagena, *Jacquin*. Torrecilla, Bolívar, 150-300 m., *Killip & Smith 14394* (W, Y). Santa Marta, *H. H. Smith 392* (F, W, G, M, P; Y, type of *C. longicaudata*). Cartagena, *Bro. Heriberto 135* (W). Usiacuri, 250 m., *Bro. Elias 270* (W). Santa Marta, *Purdie* (G, K). Barranquilla, *Bro. Elias 518* (W). Lower Magdalena, *Dawe 435* (W, K). Also in Panama.

A shrub or small tree, armed with stout spines; leaves ovate or elliptic, pilosulous when young; flowers yellowish white, in small slender-peduncled cymes; fruit drupaceous, black at maturity.

54. MALANEA Aubl.

Malanea colombiana, sp. nov.—Frutex vel arbor, ramulis gracilibus subteretibus ferrugineo-brunneis lenticellis numerosis elevatis pallidis notatis, novellis dense cinereo-strigosis, internodiis elongatis; stipulae deciduae, ellipticae, 7-10 mm. longae, acutae, extus sericeae, erectae; folia opposita, petiolo 4-14 mm. longo strigoso; lamina ovalis, elliptica vel ovali-ovata, 5-11 cm. longa, 2.5-7.5 cm. lata, apice obtusa vel rotundata et abrupte acuminata, acumine obtuso brevissimo vel usque ad 1.5 cm. longo, basi rotundata, crasse membranacea, supra viridis, glabra vel ad costam sparse strigillosa, subtus vix pallidior, praesertim ad nervos sparse strigillosa, costa nervisque gracilibus elevatis, nervis lateralibus utroque latere c. 7, angulo acuto adscendentibus, arcuatis, juxta marginem conjunctis; inflorescentiae axillares, graciliter longipedunculatae, foliis saepe longiores, trichotomae, floribus sessilibus glomerato-spicatis, spicis paniculatis, ramulis pilis griseis subadpressis dense indutis, bracteolis decussatis ovatis acutis strigillosis calyce brevioribus; hypanthium obovoideum glabrum 1 mm. longum; calyx 4-lobus, 1.3 mm. longus, glaber, lobis inaequalibus ovatis obtusis; corolla alba vel viridilutescens, extus glabra, 2.5 mm. longa, lobis oblongis obtusis patentibus intus albo-pilosis; stylus exsertus; fructus oblongus, 6 mm. longus, 3 mm. latus, glaber, apice calyce persistente coronatus.—Colombia: In moist soil along railroad, Buenaventura, El Valle, at sea level, *Francis W. Pennell and Ellsworth P. Killip 5987* (U. S. Nat. Herb. No. 1,140,580, type; duplicates in G and Y); in coastal

thickets and forest, October 5-10, 1922, *Killip 11701* (W, G, Y), *11764* (W, G, Y).

55. PITTONIOTIS Griseb.

Pittoniotis trichantha Griseb. Bonplandia 8: 8. 1858. *Antirrhea trichantha* Hemsl. Biol. Centr. Amer. Bot. 2: 42. 1881.

Santa Marta, *H. H. Smith 2085* (F, P). Also in Panama.

A small tree; leaves petiolate, broadly ovate or ovate-elliptic, 6-14 cm. long, abruptly acuminate, thin, appressed-pilose beneath; flowers small, in dense panicled cymes, the flowers secund along the slender branches; corolla 4-5 mm. long; drupe 2-3-celled, 5-6 mm. long.

56. CHIOCOCCA L.

Chiococca alba (L.) Hitchc. Rept. Mo. Bot. Gard. 4: 94. 1893. *Lonicera alba* L. Sp. Pl. 175. 1753. *C. racemosa* L. Syst. Nat. ed. 10. 917. 1759. *C. brachiata* R. & P. Fl. Peruv. 2: 67. *pl. 219*. 1799. *C. anguifuga* Mart. Spec. Mat. Med. Bras. 17. *pl. 5*. 1824.

Cali and Quilichao, Cauca, 1,000-1,500 m., *Lehmann 7640* (F, W). Guaduas, Cundinamarca, *Ariste-Joseph A867* (W). Mesa de los Santos, Santander, 1,000-1,500 m., *Killip & Smith 14985* (W, Y), *15432* (W, Y). La Cumbre, El Valle, 1,650-1,850 m., *Pennell 5717* (W). Cali, 1,000-1,500 m., *Lehmann 3265* (W). Fusagasugá to Pandi, Cundinamarca, 1,000-1,200 m., *Pennell 2753* (W, G, Y). Río Suratá Valley, 1,500-1,800 m., *Killip & Smith 16434* (W, Y). Santa Marta, *H. H. Smith 85* (F, W, P), *2406* (F, W), *94* (F, P), *1836* (F, P), *839* (F, G, P). Fusagasugá, 1,800 m., *André 1372* (F, K, Y). La Plata, Tolima, 1,000-1,200 m., *Lehmann 8469* (F). San Agustín, Tolima, 400-1,600 m., *Lehmann 2303* (F). La Paila, Cauca, *Holton 434* (G, P), *433* (P). Río Hacha, September, 1844, *Purdie* (K). Near Cali(?), *André K.1108* (K, Y). Between Palmira and Cali, *André 2611* (K). Guaduas, *André 543* (K, Y). Opia, December, 1852, *Holton* (Y). Santa Marta, *Purdie* (Y). Widely distributed in tropical America.

A shrub, the branches often long and pendent or subscandent; flowers pale yellow or nearly white; fruit white, compressed, fleshy.

Called "raíz de murciélago" at Turbaco.

The species is a variable one as to size and shape of the leaves, size of the corolla, and size of the fruit. It seems impossible to distinguish definitely the segregates which have been proposed.

Chiococca micrantha J. R. Johnston, Proc. Amer. Acad. 40: 696. 1905.

Tierrabomba Island, Cartagena Bay, *Killip & Smith 14129* (Y). Also in Venezuela.

A shrub 1-3 m. high; leaves lanceolate, 3-5 cm. long, acuminate, attenuate to the base; inflorescences about 3-flowered, the flowers

pedicellate; corolla small, greenish, about twice as long as the calyx; fruit white, 3 mm. broad.

57. COFFEA L.

Coffea arabica L. Sp. Pl. 172. 1753.

Coffee is, of course, one of the principal products of Colombia, as in most tropical American countries, and it is grown in the mountains upon a large scale. That of Colombia holds a high reputation in the markets of the world because of its superior quality, ranking with that of Venezuela, Ecuador, and Central America.

58. IXORA L.

Ixora floribunda (A. Rich.) Griseb. Cat. Pl. Cub. 134. 1866. *Siderodendron floribundum* A. Rich. in Sagra, Hist. Cub. 11: 24. 1850.

Jiracasaca, 750 m., *H. H. Smith 858* (Y), *1777* (F, W, G, M, P, Y). Forest near Masinga, 180 m., *H. H. Smith 858* (Y); at 240 m., *H. H. Smith 858* (Y). Santa Marta, 300 m., *H. H. Smith 858* (F, W, G, M, P, Y). Without locality, *Triana 1729* (K). Magdalena Valley, *Goudot* 12 (K). Also in Cuba and Bolivia.

A shrub or tree, sometimes 18 m. high; leaves petiolate, oblanceolate-oblong to elliptic or oblong-oval, obtuse to short-acuminate, acute at the base, glabrous; flowers white or pinkish, in terminal sessile pubescent panicles; corolla glabrous, the tube 5-6 mm. long, the oblong spreading lobes slightly shorter; stamens exserted.

59. MORINDA L.

Morinda panamensis Seem. Bot. Voy. Herald 136. 1854.

San Martín de Loba, Bolívar, *Curran 74* (W), *185* (W). Estrella, Bolívar, *Curran 326* (W). Also in Central America.

A shrub or tree, sometimes 6 m. high, with a trunk 10 cm. in diameter; wood yellow; leaves elliptic or oblong-elliptic, acuminate, 4-10 cm. wide, glabrous or nearly so; flowers white or pink, 1.5 cm. long, the heads on peduncles 1-3 cm. long.

Called "yema de huevo."

Morinda Roioc L. Sp. Pl. 176. 1753.

Cartagena, *Bro. Heriberto 65* (W), *31* (W); *Bro. Elias 494* (W); *Schott*, November, 1857 (F). Santa Marta, *H. H. Smith 312* (F, W, P), *2546* (F). Manga Island, Cartagena, *Killip & Smith 14013* (W, Y). La Popa, near Cartagena, *Killip & Smith 14061* (W, Y). Widely distributed in tropical America.

A shrub or small tree of coastal thickets, often subscandent; leaves mostly linear-oblong to oblanceolate-oblong, acute or acuminate, glabrous or nearly so; flowers 1 cm. long, the small dense heads on peduncles 3-10 mm. long.

A note with Schott specimen reads: "Said to be very poisonous. Sea water taken internally acts as an emetic and as an antidote."

Morinda turbacensis HBK. Nov. Gen. & Sp. 3: 380. 1820.

Type collected between Cartagena and Turbaco, *Bonpland.*

A shrub; leaves obovate-oblong, acute, hirtellous, softly pubescent beneath, 7.5 cm. long; heads very shortly pedunculate; corolla villous-hirtous.

This species seems to be known only from the original collection. It may be only a form of *M. Roioc.*

60. COUSSAREA Aubl.

Coussarea grandifolia Rusby, Descr. N. Sp. S. Amer. Pl. 144. 1920.

Mountain forest, Valparaíso, Santa Marta, 1,200-1,500 m., *H. H. Smith 1830* (Y, type; F, M, P).

A glabrous tree 6-9 m. high; stipules 2 cm. long, connate into a loose deciduous sheath; leaves petiolate, obovate to broadly elliptic, 12-25 cm. long, 8-15 cm. wide, abruptly short-acuminate; flowers white, in small pyramidal panicles; calyx obscurely 5-dentate; corolla tube 6-11 mm. long, the lobes about 6 mm. long.

Coussarea grandis Muell. Arg. in Mart. Fl. Bras. 6^5: 100. 1881.

Type from San Carlos on the Río Negro, *Spruce 3458, 3485.*

Glabrous; stipules short, broadly obtuse, connate into a tube; leaves short-petiolate, elliptic-lanceolate, 15-23 cm. long, 5-8 cm. wide, long-acuminate, acute at the base; flowers ternate at the ends of the branchlets; calyx truncate; corolla 4.5-5 cm. long, puberulent, the lobes nearly as long as the tube; fruit oblong-ellipsoid, 3 cm. long, acute at each end.

Coussarea leptoloba (B. & H.) Muell. Arg. Flora 58: 468. 1875. *Faramea leptoloba* B. & H. Gen. Pl. 2: 121. 1873.

Reported by Mueller (in Mart. Fl. Bras. 6^5: 100. 1881) from San Carlos on the Río Negro, *Spruce 3141.* Also in Brazil.

Stipules short-sheathing, the sheath multidentate at the apex; leaves short-petiolate, elliptic-lanceolate, 15-23 cm. long, 5-8 cm. wide, cuspidate-acuminate; cymes terminal, sessile, with few branches, the flowers sessile; calyx tubular, its lobes narrowly triangular, recurved; corolla 3 cm. long, puberulent, the lobes slightly shorter than the tube.

Coussarea petiolaris (Benth.), comb. nov. *Faramea petiolaris* Benth. Linnaea 23: 450. 1850.

Type from Colombia.

Stipules short, broad, muticous; leaves long-petioled, broadly ovate, cuspidate, acutish at the base; panicles slightly longer than

the petioles, the umbels 5-7-flowered; calyx truncate; corolla lobes shorter than the tube.

Coussarea venosa, sp. nov.—Ramuli crassi, compressi, virides, sparse minuteque puberuli; stipulae (perfectae non visae) persistentes, basi breviter connatae, ovato-triangulares, c. 8 mm. longae, puberulae, erectae; folia brevissime petiolata, opposita, petiolo 3-5 mm. longo crasso dense et minute puberulo; lamina coriacea, elliptico-oblonga, 19-23 cm. longa, 6.5-8 cm. lata, subabrupte acuminata, acumine angusto brevi obtuso, basin versus sensim angustata, supra glabra, luteo-viridis, nervis subimpressis, subtus pallidior, ad costam validam elevatam sparse pilosula, nervis lateralibus utroque latere c. 15, valde elevatis, gracilibus, arcuatis, angulo acuto adscendentibus, juxta marginem conjunctis, nervulis prominentibus laxe reticulatis, margine revoluto; inflorescentia terminalis 4 cm. longe pedunculata, racemoso-paniculata, 4.5 cm. longa, pauciramosa, ramis infimis vix 1 cm. longis divaricatis rigidis minute puberulis, superioribus brevissimis, floribus ad apices ramorum capitato-congestis sessilibus; drupa ellipsoidea subcompressa 1.6 cm. longa glabra; semen suborbiculare subcompressum nigrescens 7 mm. latum.—Colombia: Forests of Coteje, Río Timbiquí, in 1910, *F. C. Lehmann B.T.647* (Herb. N. Y. Bot. Gard., type).

61. FARAMEA Aubl.

Faramea angustifolia Spruce ex B. & H. Gen. Pl. 2: 121. 1837, nomen; Muell. Arg. Flora 58: 471. 1875.

Type collected along the Río Negro near San Carlos, *Spruce 3075*. Also in Brazil.

Stipules connate into a long narrow biaristate sheath; leaves elongate, 8-17 cm. long, 0.8-3 cm. wide, long-acuminate, membranaceous, glabrous, with 10-13 pairs of almost perpendicular lateral veins; cymes terminal, pedunculate, umbellately 5-rayed, the flowers umbellate; calyx campanulate, minutely 4-dentate; corolla 8-9 mm. long, glabrous, the 4 lobes half as long as the tube; fruit globose, 8 mm. broad.

Faramea calophylla, sp. nov.—Frutex glaber, ramulis laevibus subteretibus vel in siccitate subcompressis lutescentibus, internodiis elongatis; stipulae c. 1.5 cm. longae, e basi triangulari lineares, involutae, caducae; petioli crassi 6-12 mm. longi supra late sulcati; limbus elliptico-ovalis, oblongo-ellipticus vel oblongus, 9-15 cm. longus, 2-7 cm. latus, apice acutus vel saepe rotundatus et abrupte caudato-acuminatus, acumine 1-2 cm. longo lineari obtuso, basi acutus vel obtusus et abrupte breviterque decurrens, coriaceus, lucidus, fere concolor, costa supra elevata subtus bisulcata crassiuscula, nervis lateralibus utroque latere c. 16, gracilibus, utrinque prominulis, angulo fere recto divergentibus, subarcuatis, prope

marginem nervum collectivum irregularem efformantibus, nervis intermediis inter laterales nervulis transversis conjunctos conspicuis et eis parallelis, margine incrassato et angustissime revoluto; inflorescentiae terminales, cymoso-corymbosae, laxe pauciflorae, 3-4 cm. longe pedunculatae, pedicellis crassis c. 6 mm. longis, bracteis minutis ovatis acuminatis deciduis; fructus transverse ovalis laevis 1.5 cm. latus; semen griseum 12 mm. longum subtus profunde sulcatum.—Colombia: Buenaventura, Dept. El Valle, at sea level, October 5-10, 1922, *Ellsworth P. Killip 11765* (U. S. Nat. Herb., type; duplicates in Gray Herb. and herb. N. Y. Bot. Gard.). Córdoba, alt. 80-100 m., May 6-8, 1922, *Killip 5139* (W, G, Y).

Faramea cestroides, sp. nov.—Arbor parva glabra, ramulis gracilibus subteretibus, internodiis 2.5-6 cm. longis; stipulae deciduae, breviter connatae, e basi ovato-triangulari subulato-acuminatae; petiolus gracilis, 4-7 mm. longus, supra late sulcatus; lamina oblonga vel ovato-oblonga, 9.5-15.5 cm. longa, 3-5.5 cm. lata, apicem versus angustata et abrupte caudato-acuminata, acumine 1.5-2.5 cm. longo, basi obtusa vel acuta et interdum breviter decurrens, chartacea, fere concolor, sublucida, pallide marginata, margine interdum anguste revoluto, costa nervisque utrinque prominentibus, nervis lateralibus utroque latere c. 14, angulo fere recto divergentibus, gracilibus, prope marginem irregulariter conjunctis; inflorescentia terminalis, 1-1.8 cm. longe pedunculata, cymoso-corymbosa, trichotoma, 2-5 cm. longa, usque ad 6 cm. lata, ramulis 1-3-floris, bracteis infimis ad 1 cm. longis, ceteris subulatis 1-2 mm. longis, floribus subsessilibus; hypanthium breviter cylindricum 1.5 mm. longum; calyx 1 mm. longus truncatus remote 4-denticulatus; corolla pallide caerulea glabra, tubo 12 mm. longo superne paullo dilatato et 2.2 mm. lato, lobis 4 triangulari-oblongis 3.5 mm. longis acutiusculis intus glabris patentibus; antherae lineari-oblongae semiexsertae; stylus inclusus.—Colombia: Sierra del Líbano, Santa Marta, alt. 1,800 m., January 26, 1891, *H. H. Smith 1776* (Herb. Field Mus. No. 138,636, type; duplicates in G, M). Ocaña, 1,800-2,100 m., in forest, *Schlim 461* (K). Ocaña, 2,100 m., *Kalbreyer 587* (K). Portachuelo, 2,100-2,400 m., *Kalbreyer 1854* (K).

According to Kalbreyer, a shrub 2.5 m. high, the flowers very fragrant, the corolla pale blue outside and white within.

The species is easily recognized by the very short corolla lobes.

Faramea cuspidata Benth. Pl. Hartw. 194. 1845.

Type from the western slope of the Andes of Popayán, *Hartweg 1063*. Dense forests of Río Timbiquí, 500 m., *Lehmann 9002* (F, Y). Micay, *Lehmann K.121* (K). Timbiquí, *Lehmann K.120* (K).

A glabrous shrub 2.5-3 m. high; stipules ovate, subconnate, 4 mm. long, aristate; leaves short-petiolate, narrowly oblong, caudate-acuminate, the tip 2-2.5 cm. long, linear; flowers in large lax corymbs, slender-pedicellate; calyx 4-dentate; corolla blue, glabrous, the tube 6 mm. long, the linear lobes slightly longer.

Faramea cyathocalyx, sp. nov.—Frutex, ramulis crassis subcompressis luteo-viridibus glabris, internodiis elongatis; stipulae subpersistentes 6-7 mm. longae et ultra, late triangulares, acutae, glabrae, in aristam validam sensim desinentes; folia breviter petiolata opposita, petiolo valido c. 12 mm. longo supra late sulcato; lamina coriacea, oblonga, 14-22 cm. longa, 5-9 cm. lata, abrupte acuminata, acumine angusto c. 1.5 cm. longo attenuato obtusiusculo, basi acuta vel obtusa et abrupte contracta, utrinque glabra, supra luteo-viridis, costa elevata, nervis subimpressis, subtus pallida, costa crassa elevata, nervis lateralibus utroque latere c. 13, gracilibus, prominentibus, angulo fere recto divaricatis, fere rectis, remote a margine arcuato-conjunctis, nervulis vix prominulis laxe reticulatis; flores sessiles in axillis fasciculato-cymosis, inflorescentiis sessilibus vel subsessilibus, floribus dense congestis subcapitatis, bracteis minutis; hypanthium glabrum turbinatum 5 mm. longum; calyx 1 cm. longus cylindrico-campanulatus, ore 6 mm. latus, subtruncatus et brevissime 4-lobus, lobis latissimis truncatis; corolla in alabastro 2-2.5 cm. longa extus glabra acuminata, lobis tubo brevioribus.—Colombia: In forest, Frasquillo on Río Sinu, Dept. Bolívar, alt. 90-120 m., March 5-6, 1918, *Francis W. Pennell 4607* (Herb. N. Y. Bot. Gard., type).

Vernacular name, "jazmín." A striking plant because of the large leathery leaves and axillary inflorescences.

Faramea flavicans (H. & B.), comb. nov. *Coffea flavicans* H. & B. ex R. & S. Syst. Veg. 5: 210. 1819. *Tetramerium jasminoides* HBK. Nov. Gen. & Sp. 3: 373. *pl. 287.* 1820. *F. jasminoides* DC. Prodr. 4: 497. 1830.

Type of *T. jasminoides* from Ibagué, *Bonpland.*

Leaves oblong-elliptic, acuminate, acute at the base, 6.5 cm. long, subcoriaceous, glabrous; stipules deltoid-ovate, acute, muticous; cymes terminal, the branches 3-flowered; calyx 4-dentate; corolla glabrous, the lobes half as long as the tube; fruit smooth.

Faramea insignis, sp. nov.—Arbor glabra, ramulis gracilibus in siccitate compressis, internodiis 2-2.5 cm. longis; stipulae deciduae, 2-2.5 cm. longae, basi breviter connatae, lineares, aristato-attenuatae, virides, erectae; petioli crassiusculi 4-6 mm. longi supra late sulcati; limbus oblongus, 8-18 cm. longus, 2-5.7 cm. latus, apice acutus vel obtusus et abrupte caudato-acuminatus, acumine 2-2.5 cm. longo lineari obtuso, basi obtusus vel acutiusculus, chartaceus, sublucidus, subconcolor, costa gracili utrinque elevata, nervis lateralibus utroque latere c. 13, gracilibus, prominulis, angulo fere recto divergentibus, fere rectis, prope marginem in nervum distinctum collectivum conjunctis, nervulis prominulis laxe reticulatis, extremis nervulum gracilem submarginalem efformantibus, margine plano paullo incrassato; inflorescentiae cymoso-corymbosae 2.5-4.5 cm. longe pedunculatae, interdum basi foliis 2 parvis angustis fulcratae, trichotomae, cymulis paucifloris, pedicellis gracilibus 5-9 mm. longis,

minutis; hypanthium ovale 1 mm. longum; calyx 0.5 mm. longus truncatus et remote atque obsolete denticulatus; corolla intense caerulea glabra, tubo 9-10 mm. longo gracili 1 mm. lato superne non dilatato, lobis 4 lineari-lanceolatis 8-9 mm. longis versus apicem acutiusculum sensim attenuatis, intus glabris; antherae inclusae.—Colombia: Forest along the Río Caballete, Santa Rosa, Dept. El Valle, alt. 200-300 m., September 22, 1922, *Ellsworth P. Killip 11538* (U. S. Nat. Herb. No. 1,140,715, type; duplicates in Gray Herb. and herb. N. Y. Bot. Gard.). Forest along Río Calima, Córdoba, Dept. El Valle, alt. 80-100 m., *Killip 11792* (W, Y).

In its leaves and flowers this plant is almost identical with *F. cuspidata* Benth., also Colombian, but that has strikingly different stipules, only 4 mm. long.

Faramea Killipii, sp. nov.—Frutex vel arbor glabra 3.5-4.5 m. alta, ramulis crassiusculis quadrangulatis lutescentibus vel fuscis, internodiis elongatis; stipulae usque ad 2 cm. longae basi alte connatae attenuatae deciduae; petioli crassi, 7-13 mm. longi, supra late sulcati, superne anguste marginati; limbus oblongus vel elliptico-oblongus, 8-14 cm. longus, 3-5.5 cm. latus, apice abrupte breviterque acuminatus, acumine triangulari obtuso c. 7 mm. longo, basi obtusus vel acutus, subcoriaceus, fere concolor, lucidus, costa valida supra plana subtus elevata, nervis lateralibus utroque latere c. 12, supra inconspicuis, subtus prominulis, angulo lato divergentibus, fere rectis, remote a margine conjunctis, nervulis prominulis reticulatis, marginatus, margine saepe anguste revoluto; inflorescentiae cymoso-corymbosae, terminales vel pseudolaterales, dense multiflorae, sessiles et a basi ramosae vel pedunculatae, pedicellis 6-8 mm. longis; fructus purpureo-caerulescens, transverse ovalis, 10-12 mm. latus, laevis; semen ovale, 7 mm. longum, nigro-griseum, subtus profunde exsculptum.—Colombia: Edge of woods, eastern slope of Páramo del Hatico, between Toledo and Pamplona, Dept. Norte de Santander, alt. 2,400 m., March 12, 1927, *E. P. Killip & Albert C. Smith 20569* (U. S. Nat. Herb. No. 1,355,598, type). Aguachica, Ocaña, 240 m., *Schlim 273* (K). Pericos, Ocaña, *Schlim 531* (K). Pamplona, 2,700-3,000 m., in forests, *Schlim 1075* (K). Without locality *Triana 1730* (K). Between Sibate and Fusagasugá, Cundinamarca, 2,400-3,000 m., in dense forest, *Lehmann 7428* (K).

Probably conspecific is a collection from the southern slope of Mount San Martín, near Charta, Dept. Santander *Killip & Smith 19167* (W, Y). This is in bud and also in fruit. The calyx is obscurely denticulate.

From *F. calophylla* this is distinguished by the thinner, less conspicuously nerved leaves, with very short, broad acuminations.

Faramea Langlassei, sp. nov.—Arbor glabra 15-20-metralis, ramulis crassiusculis, internodiis elongatis; stipulae non visae, petioli crassi 5-8 mm. longi; lamina oblonga vel anguste oblonga,

8-17 cm. longa, 2-6 cm. lata, apice abrupte caudato-acuminata, acumine 1.5 cm. longo obtuso, basi obtusa vel acuta, coriacea, fere concolor, costa gracili elevata, nervis utrinque prominentibus gracilibus, nervis lateralibus utroque latere c. 17, angulo fere recto divergentibus, leviter arcuatis, prope marginem in nervum distinctum conjunctis, nervulis prominulis reticulatis, margine pallido incrassato; inflorescentia umbellato-corymbosa, sessilis, trichotoma, pauciflora, 7 cm. longa, bracteis minutis deciduis, umbellulis trifloris, pedicellis gracilibus 5-7 mm. longis; hypanthium obovoideum 1 mm. longum; calyx campanulatus 1 mm. longus minutissime denticulatus; corolla alba glabra 2 cm. longa, tubo 1 cm. longo superne solemniter dilatato et 5 mm. lato, lobis 4 anguste lanceolato-triangularibus versus apicem sensim attenuatis; antherae inclusae.—Colombia: El Roble, alt. 1,800 m., December 13, 1899, *E. Langlassé 108* (U. S. Nat. Herb. No. 530,585, type).

Faramea Lehmannii, sp. nov.—Frutex glaber, ramulis in sicco compressis crassiusculis ad nodos paullo crassioribus, internodiis elongatis; stipulae deciduae 5-7 mm. longae, triangulares, acutae, breviter connatae; petioli crassi 6-10 mm. longi; lamina obovato-oblonga vel lanceolato-oblonga, 10-25 cm. longa, 3-8 cm. lata, apice obtusa vel acuta et abrupte caudato-acuminata, acumine 1.5 cm. longo obtuso, basin versus cuneatim attenuata, coriacea, concolor, sublucida, costa nervisque utrinque prominentibus, costa crassa, nervis lateralibus utroque latere 11-15, angulo fere recto divergentibus, leviter arcuatis, prope marginem arcuato-conjunctis, nervulis prominulis et arcte reticulatis, margine fere plano incrassato; inflorescentia umbellato-corymbosa, 3.5 cm. longe pedunculata, 4 cm. longa, basi umbellatim ramosa, pedunculis paucifloris, floribus brevissime pedicellatis, bracteis caducis; hypanthium cylindricum c. 2 mm. longum; calyx campanulatus truncatus 2-2.5 mm. longus; corolla in alabastro 8 mm. longa longiattenuata, lobis tubo longioribus.—Colombia: Timbiquí, *F. C. Lehmann 8630* (Herb. Field Mus. No. 578,484, type; duplicate in Y). Tuluá, Cauca, *Holton 432* (K, P, Y).

The Holton collection, which is in fruit, although having much smaller leaves than the type, is almost certainly conspecific. The fruit, still immature, is globose, 6 mm. in diameter, and obtusely tuberculate.

In the form of the corolla *F. Lehmannii* suggests *F. occidentalis,* but in that the leaves are thinner and less conspicuously veined and the calyx is dentate.

Faramea oblongifolia, sp. nov.—Frutex vel arbor c. 3.5 m. alta glabra, ramulis crassis in sicco subcompressis, internodiis elongatis; stipulae deciduae, 1-1.5 cm. longae, alte connatae, tenues, parte libera obtusa vel acuta et breviter apiculato-acuminata; petioli crassi 5-10 mm. longi supra late canaliculati; lamina anguste oblonga, 8-18 cm. longa, 2-5 cm. lata, apice breviter acuminata

vel acuta obtusave acumine obtuso, basi obtusa vel acutiuscula, subcoriacea, in sicco fusca, subconcolor, sublucida, costa nervisque supra planis, costa interdum subimpressa, costa subtus elevata gracili, nervis lateralibus utroque latere 12-19, angulo fere recto divergentibus, fere rectis, prope marginem in nervum distinctum collectivum conjunctis, nervulis prominulis laxe conjunctis; inflorescentia cymoso-corymbosa, sessilis, trichotoma, laxe multiflora, 8-12 cm. longa, ramulis crassis, cymis umbelliformibus 3-5-floris, bracteis primariis interdum foliaceis, ceteris minutis late ovatis breviter acuminatis, pedicellis crassis 2-4 mm. longis; hypanthium obovoideum 1.5 mm. longum; calyx 1-1.2 mm. longus, late campanulatus, obsolete denticulatus; corolla alba vel caerulescens glabra, tubo 13 mm. longo, superne non dilatato, 1.6 mm. lato, lobis oblongo-ovatis 6-7 mm. longis patentibus; antherae inclusae; fructus transverse ovalis, 8 mm. altus, 10-12 mm. latus.—Colombia: In forest, La Cumbre, Dept. El Valle, alt. 1,800-2,100 m., May 14-19, 1922, *Francis W. Pennell 5715* (U. S. Nat. Herb. No. 1,140,756, type; duplicates in G and Y), *5700* (W, G, Y). Quindío, *Goudot 120* (K). Ocaña, 1,200 m., *Schlim 681* (K).

The species is well marked by the narrow, obtuse or short-acuminate leaves, and the large many-flowered inflorescences.

Faramea occidentalis (L.) A. Rich. Mém. Soc. Hist. Nat. Paris 5: 176. 1834. *Ixora occidentalis* L. Syst. Nat. ed. 10. 2: 893. 1759. *Tetramerium odoratissmum* DC. Prodr. 4: 496. 1830.

Don Amo Road, Santa Marta, 180 m., *H. H. Smith 2403* (F, W, G, Y, M, P). Without locality, *Hartweg* (P). Cartagena, *Bro. Heriberto 532* (W). Along Mompos-Juana Sánchez Trail, island of Mompos, Bolívar, in 1916, *Curran* (W). Without locality, *Funcke & Schlim 632* (Y). Also in Central America, Mexico, and the West Indies.

A slender glabrous shrub or small tree; stipules aristate; leaves short-petiolate, narrowly oblong or lance-oblong, short-acuminate, acute at the base, thin; inflorescences terminal and axillary, few-flowered, corymbose or umbellate, the flowers long-pedicellate, white, fragrant; corolla glabrous, 2 cm. long, the linear-lanceolate lobes equaling or longer than the tube; fruit 1.5 cm. broad.

"Jazmín" (*Curran*).

Faramea parvula, sp. nov.—Frutex gracilis 1-metralis, ramulis gracillimis angulatis viridibus glabris c. 1 mm. diam., internodiis 5-10 mm. longis; stipulae deciduae 2 mm. longae acutae breviter connatae, in aristam erectam 1.5-2 mm. longam desinentes; folia brevissime petiolata opposita, petiolo 1-1.5 mm. longo glabro; lamina rigide membranacea, anguste lanceolata vel lineari-lanceolata, 2-2.5 cm. longa, 4-5 mm. lata, versus apicem obtusum longe sensimque attenuata, basi obtusa, utrinque glabra, supra luteo-viridis, costa elevata, nervis obsoletis subtus paullo pallidior, costa crassiuscula elevata, nervis lateralibus obscuris numerosis angulo lato

divergentibus; flores terminales solitarii foliis 2 c. 12 mm. longis fulcrati sessiles; calyx late campanulatus, 1 mm. longus, obscure denticulatus et in dentes 2 subulatos 1-1.5 mm. longos erectos virides desinens, glaber; corolla alba extus glabra, tubo gracili 5-7 mm. longo tereti, lobis anguste oblongis acutis, patentibus tubum aequantibus; antherae inclusae.—Colombia: Cucurutha, Prov. Antioquía, alt. 2,100 m., December 25, 1879, *Kalbreyer* (Herb. Kew., type).

This is very unlike any of the other Farameas of western South America, being especially well marked by the very small narrow leaves, slender habit, and solitary flowers. The form of the calyx, also, is unusual, but the characters of the plant as a whole seem to agree well enough with those of other species of the genus *Faramea*.

Faramea Purdieana Benth. Linnaea 23: 453. 1850.

Type from Colombia.

Stipules short-aristate; leaves petiolate, oblong, acuminate, acute at the base, coriaceous, marginate; peduncles several, short, 3-5-flowered; calyx truncate; corolla lobes slightly shorter than the tube.

Faramea salicifolia Presl, Symb. Bot. 24. *pl. 70*. 1833.

Muzo, *Goudot* (K). Widely distributed in South America, especially in Brazil.

A glabrous shrub; stipules connate into a sheath, subulate-aristate; leaves very shortly petiolate, lance-ovate to linear-lanceolate, 5-8.5 cm. long, 0.5-3 cm. wide, cuspidate-acuminate, firmly membranaceous; cymes terminal, fastigiate-corymbose, the branchlets 1-3-flowered, the flowers slender-pedicellate; calyx teeth triangular; corolla 10-14 mm. long, glabrous, the 4 lobes fully half as long as the tube; fruits about 8 mm. wide.

The determination of the single Colombian collection is somewhat doubtful.

62. GEOPHILA Don

Geophila herbacea (Jacq.) Schum. in E. & P. Nat. Pfl. 4^4: 119. 1891. *Psychotria herbacea* Jacq. Enum. Pl. Carib. 16. 1760. *Psychotria herbacea* Willd. ex R. & S. Syst. Veg. 5: 191. 1819. *Cephaelis violaefolia* DC. Prodr. 4: 537. 1830.

Isla Brava, Magdalena River, *André K.539* (F). Santa Marta, *H. H. Smith 1332* (F, G, W). Puerto Wilches, Santander, 100 m., *Killip & Smith 14764* (Y). Palmira, El Valle, 1,100 m., *Pennell & Killip 6160* (Y). Widely distributed as a weed in the lowlands of tropical America.

A creeping herb with rounded or ovate, cordate, petioled leaves; flowers white, in terminal pedunculate heads, the pedicels bracteolate near the base; ovary glabrous; fruits red or black, 5 mm. long.

Geophila tenuis (Muell. Arg.), comb. nov. *Mapouria tenuis* Muell. Arg. in Mart. Fl. Bras. 6[5]: 425. 1881.

Type collected along the Río Negro above the mouth of the Río Casiquiari, *Spruce 3524*.

Leaves ovate, acute, cordate at the base, pilose above; heads 2-3-flowered, the pedicels bracteolate at the apex; ovary pilose.

63. CEPHAELIS Sw.

Cephaelis axillaris Sw. Prodr. Veg. Ind. Occ. 45. 1788. *Tapogomea axillaris* Poir. Encycl. 7: 585. 1806. *Evea axillaris* Standl. Contr. U. S. Nat. Herb. 18: 123. 1916.

Loso, 2,200-2,400 m., *Killip & Smith 20410* (W, Y). Pica-Pica Valley above Tapatá, 2,400 m., *Killip & Smith 20214* (W, Y). Above Suratá, 2,000-2,300 m., *Killip & Smith 16590* (W, Y). Las Vegas, 2,600-3,000 m., *Killip & Smith 16040* (W, Y). Charta, 2,000-2,600 m., *Killip & Smith 19318* (W, Y), *18850* (W, Y). Western slope of Peña Blanca, near Charta, 2,500-2,600 m., *Killip & Smith 19288* (W). Santa Marta, 1,350 m., *H. H. Smith 389* (F, W, G, M, P, Y). La Gallera, Micay Valley, 1,400-1,500 m., *Killip 7782* (W, G, Y). Fusagasugá, 1,800-2,300 m., *Pennell 2700A* (W, Y). Santa Marta, *Purdie* (G, N). Córdoba, Cauca, 30-100 m., *Pittier 554* (W, G). Salgar, *Toro 1267* (Y), *1270* (Y). Near Bogotá, *Tracey 14* (K). Also in Central America and the West Indies.

A glabrous shrub, usually about 1 m. high; stipules bilobate, the lobes obtuse or acute; leaves short-petiolate, obovate-oblong, abruptly acuminate, attenuate to the base; flower heads small, axillary, sessile; corolla white; fruit blue.

Cephaelis campyloneuroides Standl. Field Mus. Bot. 4: 294. 1929. *Evea campyloneuroides* Standl. Contr. U. S. Nat. Herb. 18: 123. 1916.

Córdoba, Dagua Valley, Cauca, 30-100 m., *Pittier 581* (W, type); *Killip 11785* (W, G, Y). In forest.

A shrub 2 m. high; stipules bilobate, the lobes lanceolate, long-attenuate; leaves petiolate, elliptic to oblanceolate-oblong, 14-18 cm. long, abruptly acuminate, appressed-pilose beneath; flower heads terminal, long-pedunculate, trichotomous or the heads several and umbellate, 1-1.5 cm. long, the bracts green, oval-obovate, obtuse, sericeous; corolla white.

Cephaelis crassifolia, sp. nov.—Arbor omnino glabra, ramulis crassis teretibus laevibus in sicco fuscis, internodiis brevibus vel elongatis; stipulae persistentes, connatae, 6 mm. longae, crassae, breviter bilobae, lobis late triangularibus acutis sinu rotundato separatis; folia opposita, petiolo crasso 1-2 cm. longo; lamina ovali-obovata vel obovato-elliptica, 11.5-16.5 cm. longa, 6.5-9.5 cm. lata, apice rotundata et breviter acuminato-producta, basi late cuneata vel abrupte contracta et breviter decurrens, coriacea, conspicue

marginata, sublucida, supra viridis, rhaphidibus crebris elongatis conspersa, nervis non elevatis, subtus pallida, costa crassissima elevata, nervis lateralibus utroque latere c. 14, prominentibus, gracilibus, arcuatis, angulo lato adscendentibus, prope marginem conjunctis, nervulis obscuris; inflorescentia terminalis 4-4.5 cm. longe pedunculata, pedunculo crasso apice bracteis 2 late ovatis obtusis coriaceis instructo, capitulis 1-2 dense paucifloris 2 cm. longe pedunculatis; bracteae rotundato-ovatae, 5-6 mm. longae, induratae, adpressae; flores sessiles; fructus subglobosus 10-12 mm. longus calyce persistente coronatus.—Colombia: In forest, Córdoba, Dept. El Valle, alt. 80-100 m., May 6-8, 1922, *Ellsworth P. Killip 5133* (U. S. Nat. Herb. No. 1,140,556, type; duplicates in G and Y).

This species is a well-defined one because of its handsome, broad, very thick leaves. Although the calyx is persistent upon the fruit, in every specimen it is so weathered that its exact form can not be determined accurately.

Cephaelis elata Sw. Prodr. Veg. Ind. Occ. 45. 1788. *C. punicea* Vahl, Eclog. Amer. 1: 19. 1796. *Tapogomea elata* Poir. Encycl. 7: 585. 1806. *T. punicea* Poir., l. c. *Uragoga punicea* Schum. in E. & P. Nat. Pfl. 4^4: 120. 1891. *Evea elata* Standl. Contr. U. S. Nat. Herb. 18: 123. 1916.

Los Dantos to Puerto Canoa, 600-900 m., in forest, *Pennell 4516* (Y). Without locality, *Triana 1632* (K). Ranging northward to Mexico, and in the West Indies.

A large glabrous shrub; leaves oblong-oblanceolate to elliptic-oblong, 10-25 cm. long, acuminate; heads terminal, long-pedunculate, the large bracts deep red; corollas white.

Cephaelis Ipecacuanha (Brot.) A. Rich. Bull. Fac. Med. 4: 92. 1818. *Calicocca Ipecacuanha* Brot. Trans. Linn. Soc. 6: 137. *pl. 11*. 1802. *Ipecacuanha officinalis* Arruda, Diss. Pl. Brazil 44. 1810. *Uragoga Ipecacuanha* Baill. Hist. Pl. 7: 281. 1880. (?)*Uragoga granatensis* Baill. Hist. Pl. 7: 370. 1880, nomen. *Psychotria Ipecacuanha* Standl. Contr. U. S. Nat. Herb. 18: 123. 1916. *Ouragoga Ipecacuanha* Farwell, Drugg. Circ. 61: 175. 1917.

Boca Verde, on Río Sinu, Bolívar, 100-400 m., *Pennell 4570* (W, G, Y); February 14, 1918, *Pennell* (Y). "Forest of Darién," *Dawe 867* (Y). Also in Central America and Brazil.

Plants suffrutescent, usually simple and about 30 cm. high; stipules 4-5-parted into linear-setaceous segments; leaves short-petiolate, elliptic to obovate, 6-16 cm. long, short-acuminate, pale beneath, glabrous or nearly so; flower heads terminal, pedunculate, the 4 green bracts rhombic-obovate, about 6 mm. long; corolla hirtellous, white, 5-6 mm. long; fruit blue, 7 mm. long, the nutlets somewhat twisted, 3-costate.

"Raicilla" (Colombia, Panama). "Poaja" (Brazil). From the slender knotted roots of this plant at least a part of the ipecac of

commerce is obtained. The plant grows usually in dense wet lowland forests.

Cephaelis Jervisei, sp. nov.—Frutex dense ramosus, ramulis crassiusculis subteretibus laevibus glabris, internodiis brevibus; stipulae persistentes, erectae, 6-7 mm. longae, glabrae, basi breviter connatae, apice breviter bifidae, lobis ovatis acutis; folia opposita breviter petiolata, petiolo gracili 5-13 mm. longo; lamina subcoriacea, elliptico-oblonga vel obovato-oblonga, 8.5-11.5 cm. longa, 2-4.5 cm. lata, abrupte breviterque acuminata, acumine angusto obtuso, basi acuta, conspicue pallido-marginata, supra viridis, lucida, costa prominente, nervis subimpressis, glabra, subtus pallidior, secus costam applanatam minute ciliata, aliter glabra, nervis lateralibus utroque latere c. 19, ceteris tenuioribus parallelis interpositis, angulo lato adscendentibus, gracillimis, prominulis, arcuatis, in marginem desinentibus, nervulis obsoletis; inflorescentiae pseudo-axillares 4 cm. longe pedunculatae, e capitulis 3 longipedunculatis compositae, basi bracteis 2 patentibus triangulari-ovatis 5-6 mm. longis acutis ciliatis glabris fulcratae; capitula 1-1.8 cm. longe pedunculata, pedunculis crassis angulatis glabris erectis, capitulis 1 cm. latis dense multifloris, floribus sessilibus; bracteae exteriores orbiculari-ovatae 6-7 mm. longae subacutae glabrae, interioribus aequilongis angustioribus; calyx campanulatus 2.5 mm. longus subtruncatus ciliolatus; corolla in alabastro 6 mm. longa extus glabra.—Colombia: Antioquía, *Jervise* (Herb. Kew., type).

Cephaelis longiflora, sp. nov.—Ramuli graciles subteretes, novellis dense sordido-puberulis, internodiis elongatis; stipulae persistentes 3-4 mm. longae, basi breviter connatae, profunde bifidae, lobis apice late rotundatis, dense puberulae; folia graciliter petiolata opposita, petiolo 7-25 mm. longo dense puberulo; lamina rigide membranacea, elliptico-oblonga vel anguste elliptica, 6-14 cm. longa, 2-4.5 cm. lata, abrupte et longissime acuminata, acumine angusto longe attenuato, basin versus sensim angustata vel interdum abrupte contracta et decurrens, supra fusca, glabra, nervis prominulis, subtus multo pallidior, brunnescens, ubique villosulo-puberula, costa gracili elevata, nervis lateralibus utroque latere c. 15, ceteris multo gracilioribus parallelis interpositis, gracillimis, angulo lato adscendentibus, prominulis, arcuatis, prope marginem conjunctis, nervulis obsoletis; floribus in capitula paucifloris congestis, capitulis parvis 5-10 mm. longis, graciliter 1-3.5 cm. longe pedunculatis, in cymas laxas trichotomas longe pedunculatas 4-12 cm. longas dispositis, ramis sparse vel dense puberulis; bracteae paucae, exterioribus basi breviter connatis, orbicularibus vel late ovatis, apice rotundatis vel obtusis, minute puberulis, floribus paucis sessilibus; hypanthium cylindricum 1 mm. longum glabrum; calyx 1.2 mm. longus, lobis orbicularibus apice rotundatis; corolla 4 mm. longa extus glabra, tubo gracillimo vix 1 mm. crasso fauce paullo dilatato et ore 2 mm. lato, intus glabro, lobis 5 oblongis 4-5 mm. longis obtusis intus glabris; antherae inclusae 3.5-4 mm. longae.—Colombia: Without

definite locality, *F. C. Lehmann B.T.990* (Herb. N. Y. Bot. Gard., type; duplicate in herb. Kew.). Without locality, *Lehmann K.136* (K). Western Andes of Popayán, alt. 1,400-1,800 m., *Lehmann 5908* (K).

The species is quite unlike any other known from northwestern South America, and is easy to recognize because of the numerous long-stalked, small heads arranged in cymes, and the very long and slender corollas projecting far beyond the bracts.

Cephaelis ostreophora Wernh. Journ. Bot. 55: 284. 1917.

Type from Colombia, *Triana.*

A glabrous shrub; stipules small, 2-aristate; leaves nearly sessile. lanceolate, 7-11 cm. long, acuminate, rounded at the base; flower heads axillary, pedunculate, 7-10-flowered, the bracts ovate-cordate, acuminate, bluish, 17 mm. long; corolla glabrous, the tube 16 mm. long.

Cephaelis pseudaxillaris Wernh. Journ. Bot. 55: 284. 1917.

Type from Choio, Barbacoas, at 960 m., *Triana 1689.*

A glabrous shrub; stipules ovate-oblong, 1 cm. long; leaves elliptic-lanceolate, acuminate, 8-16 cm. long, 3.5-5.5 cm. wide, acute at the base; flower heads axillary, sessile, 1 cm. long; corolla 5-6 mm. long, barbate in the throat; fruit subpyriform, sulcate, 5 mm. long.

Perhaps synonymous with *C. axillaris.*

Cephaelis pubescens Hoffmannsegg ex R. & S. Syst. Veg. 5: 213. 1819.

Guadual, Antioquía, forest borders, 450-600 m., *Kalbreyer 1385* (K). Near Lake Sapatoza, Magdalena Valley, in forest, *Allen 216* (K). Río Meta, 200-600 m., *Lehmann 8749* (K). Also in Brazil and the Guianas.

A shrub; leaves large, thin, lance-elliptic, acuminate, acute or cuneate at the base, puberulent, especially above; heads large, long-pedunculate, terminal, the 2 outer bracts cordate, 2 cm. long, dark purple; corolla 5 mm. long; fruit blue, 3 mm. long.

Cephaelis sororiella (Muell. Arg.), comb. nov. *Psychotria sororiella* Muell. Arg. in Mart. Fl. Bras. 6^5: 375. 1881.

Type collected near San Carlos on the Río Negro, *Spruce 3682, 3076.*

Leaves firmly membranaceous, broadly lanceolate, 7-14 cm. long, sparsely pubescent on the nerves; heads terminal, short-pedunculate, the involucre 4-parted, 13-15 mm. long, the lobes lance-ovate.

Cephaelis setifera, sp. nov.—Frutex omnino glaber, ramulis gracilibus teretibus laevibus in sicco lutescentibus vel fuscis, internodiis brevibus vel elongatis; stipulae in vaginam 1-2 mm. longam apice 4-setiferam connatae, setis 3-5 mm. longis erectis rigidis

persistentibus; folia opposita, petiolo 2-4 mm. longo; lamina oblongo-ovata vel lanceolato-oblonga, 5-11 cm. longa, 1.5-4.5 cm. lata, longissime et anguste acuminata, basi obtusa vel acuta, crasse papyracea, interdum sublucida, costa nervisque utrinque prominentibus, nervis lateralibus utroque latere c. 8, angulo lato vel acuto adscendentibus, gracilibus, arcuatis, prope marginem conjunctis, nervulis laxe reticulatis; inflorescentiae terminales, 1.5-2.5 cm. longe pedunculatae, capituliformes, pauciflorae, 1-2 cm. altae, pedunculo gracili angulato glabro; bracteae primariae 4, late ovatae, c. 8 mm. longae et 6 mm. latae, acutae vel acuminatae, capitulum arcte involucrantes, interioribus aequilongis sed angustioribus; flores sessiles; hypanthium 1 mm. longum; calyx cupularis, 0.6-1 mm. longus, truncatus, remote denticulatus, dentibus subulatis; corolla infundibuliformis, 8 mm. longa, tubo superne dilatato, fauce 2.5 mm. lato, lobis oblongo-triangularibus 2.5 mm. longis subacutis; fructus subglobosus 4.5-5 mm. longus laevis.—Colombia: Forests in the highlands of Popayán, alt. 1,600-1,900 m., December, 1886, *F. C. Lehmann B.T.970* (Herb. Field Mus. No. 559,850, type; duplicates in G and K). Highlands of Popayán, 1,600-2,000 m., *Lehmann 8392* (F, S, W, Y). Angelopolis, *Toro 295* (Y).

In general appearance this plant is much like *Psychotria lupulina* Benth., which should, probably, be transferred to *Cephaelis*. *Psychotria lupulina* differs from *Cephaelis setifera* in its larger, laxer, many-flowered heads, with more numerous bracts, broader and larger leaves, and puberulent peduncles.

Cephaelis timbiquensis, sp. nov.—Ramuli crassi subteretes laeves glabri, internodiis elongatis; stipulae crassae, erectae, 2 cm. longae, multinerviae, basi breviter connatae, ad medium bifidae, laciniis semiovatis acutis, dense puberulae; folia petiolata, petiolo gracili c. 1.5 cm. longo minute puberulo; lamina oblongo-ovalis, crasse membranacea, abrupte breviterque acuminata, acumine triangulari obtuso, basi acuta vel obtusa, supra viridis, glabra, nervis in statu sicco prominentibus, subtus paullo pallidior, praesertim ad nervos minute strigillosa vel glabrata, costa gracili elevata, nervis lateralibus utroque latere c. 28, gracillimis, prominentibus, angulo fere recto divergentibus, subarcuatis, prope marginem arcuato-conjunctis, nervulis prominentibus arcte reticulatis; inflorescentia terminalis 4.5 cm. longe pedunculata, densa, e capitulis 5 racemosis composita, basi bracteis 2 distinctis late ovatis 2.5 cm. longis acutis coloratis minutissime puberulis vel glabratis fulcrata; capitula 3-4 mm. longe pedunculata, ovoidea, 3-3.5 cm. longa, densissime multiflora, bracteis omnibus fere aequilongis, exterioribus late ovatis acutis vel acuminatis coloratis multinerviis, sparse puberulis vel fere glabris, interioribus angustioribus; flores sessiles, hypanthio 1.5 mm. longo minute puberulo; calyx 5-partitus glaber, laciniis inaequalibus 3-4 mm. longis oblongo-ovatis acuminatis erectis rigidis viridibus.—Colombia: Río Timbiquí, alt. 200 m. or less, *F. C. Lehmann 8991* (Herb. Kew., type).

Cephaelis tomentosa (Aubl.) Vahl, Eclog. Amer. 1: 19. 1796. *Tapogomea tomentosa* Aubl. Pl. Guian. 1: 160. *pl. 61.* 1775. *Uragoga tomentosa* Kuntze, Rev. Gen. 1: 301. 1891. *Evea tomentosa* Standl. Contr. U. S. Nat. Herb. 18: 123. 1916.

Villavicencio, 500 m., *Pennell 1395* (W, G, N). Icononzo, 1,400-1,800 m., *Pennell 2873* (W, Y). Frasquillo, 100-200 m., *Pennell 4599* (W, Y). Malena, 150 m., *Pennell 3784* (W, G, Y). Forests of Coteje on Río Timbiquí, *Lehmann B.T.643* (W, G, Y). Between Puerto Wilches and Puerto Santos, 110 m., *Killip & Smith 14840* (W, Y). Córdoba, 100 m., *Killip 5136* (W, Y), *5262* (W). Magdalena, *Peale* (P). "Bogotá," *Turner* (P). Without locality, *Hartweg 1056* (P). Antizales, Bolivar, 1,200-1,600 m., *Pennell 4471* (Y). Carare, *André 281* (F, K, Y). Fusagasugá(?), *André K.529* (K, Y). Mesa de los Santos, Santander, 1,500 m., *Killip & Smith 15155* (W, Y), *15258* (W, Y). Naranjo, *André 367* (K). Ranging to Mexico and southward to Bolivia.

A slender shrub, sometimes 4.5 m. high, copiously hirsute; leaves lanceolate to ovate-elliptic, long-acuminate; flower heads terminal, pedunculate, dense, many-flowered, the bracts large, red, much exceeding the flowers; corollas yellow; fruit blue.

The plant is a very showy and handsome one when in flower.

Cephaelis Trianae, sp. nov.—Ramuli graciles obtuse tetragoni laeves glabri, internodiis 1.5-5.5 cm. longis; stipulae 1 cm. longae, basi breviter connatae, oblongo-ovatae, obtusae, glabrae, persistentes; folia opposita breviter petiolata, petiolo gracili 4-13 mm. longo glabro; lamina crasse chartacea, obovato-oblonga, 8-15 cm. longa, 3-6 cm. lata, abrupte cuspidato-acuminata, acumine angusto c. 1 cm. longo attenuato, basin versus longe cuneato-attenuata, supra viridis, lucida, glabra, nervis non elevatis, subtus pallidior, satis dense et minutissime strigillosa (sub lente), costa gracili elevata, nervis lateralibus utroque latere c. 13, gracillimis, prominentibus, angulo lato adscendentibus, arcuatis, marginem attingentibus, nervulis obsoletis; inflorescentiae terminales, 1 cm. longe pedunculatae, spicato-capitatae, ovoideae, 4-4.5 cm. longae, 2.5 cm. latae, densissime multiflorae, bracteis infimis 2 cm. longis, omnibus late ovatis vel rotundato-ovatis arcte imbricatis numerosis adpressis apice rotundatis minute puberulis vel glabratis.—Colombia: Without definite locality, *Triana 1677* (Herb. Kew., type).

Cephaelis violacea (Aubl.) Willd. Sp. Pl. 1: 977. 1797. *Tapogomea violacea* Aubl. Pl. Guian. 1: 157. *pl. 60.* 1775.

Córdoba, 100 m., *Killip 5141* (W, G, Y), *5265* (W, G, Y), *5138* (W). Buenaventura, at sea level, *Killip 11749* (W). Choco and Barbacoas, *Triana 3140* (K). Also in the Guianas.

A glabrous shrub or small tree; stipules broad, obtuse; leaves short-petiolate, oval to elliptic-oblong, acuminate; heads large, terminal, sessile, the bracts about 5, green or violet; corolla yellowish white; fruit blue.

64. DECLIEUXIA HBK.

Declieuxia fruticosa (Willd.) Kuntze, Rev. Gen. Pl. 1: 279. 1891. *Houstonia fruticosa* Willd. ex R. & S. Syst. Veg. 3: 527. 1818. *D. chiococcoides* HBK. Nov. Gen. & Sp. 3: 354. *pl. 281*. 1819.

Quilichao, Cauca, 1,200 m., *Lehmann 3455* (W). Mesa de los Santos, Santander, 1,500 m., *Killip & Smith 15232* (W, Y). Río Sucio to Río Piedras, west of Popayán, 1,500-1,800 m., *Pennell & Killip 8177* (W). Aganche, Cauca, *Pennell & Killip 6258* (W, G, Y). Teta, *Lehmann B.T.410* (F, Y). Cali, Cauca, 1,000-1,200 m., *Lehmann B.T.1087* (*D*). Also in Panama, and ranging to Brazil.

A low erect plant, herbaceous or suffrutescent, glabrous; leaves opposite or ternate, oblong-elliptic; flowers small, white, in umbellate cymes; fruit didymous, 2-celled, the cells 1-seeded.

65. PSYCHOTRIA L.

Psychotria is the largest genus of the family Rubiaceae, and almost pan-tropic in its distribution. In Colombia it is represented by about 75 species, a number which will increase with later exploration, since many species of the genus are known to be local in distribution.

The genus is a difficult one. The species often seem to be separated only by slight characters, yet as material accumulates, it usually strengthens the species and emphasizes the importance of the distinguishing characters, despite the apparent triviality of the latter.

This genus exhibits a far greater amount of variation than its close relative, *Palicourea*. While the inflorescence of *Palicourea* is constant as to form, that of *Psychotria* follows no special pattern, but is susceptible of almost endless variety. The stipules, likewise, which are so uniform in general appearance in *Palicourea*, are greatly diversified in *Psychotria*.

Mueller, in his treatment of *Psychotria* and allied genera in Martius' *Flora Brasiliensis*, employed a generic arrangement which has been adopted by few subsequent authors. He united with *Psychotria* the genera *Palicourea*, *Geophila*, and *Cephaelis*, but kept as distinct *Mapouria*, here merged in *Psychotria*.

It must be admitted by all who know these groups that the genera are difficult of separation. There are no sharp lines of demarcation between *Psychotria* and *Cephaelis*, or between *Psychotria* and *Palicourea*. Often it is a matter of personal judgment, rather intuition than a result of conviction based upon examination of structural details, which determines the allocation of a given plant

in one or the other group. But the groups are all so large, and for the most part so easy of recognition, at least after considerable experience, that it seems advisable to recognize them.

Mapouria possesses good claims for recognition, but it and *Psychotria* can be distinguished definitely only with mature fruit. Since in many species the fruit is unknown, it is not practical at the present time to accord generic rank to *Mapouria*.

Psychotria alba R. & P. Fl. Peruv. 2: 58. *pl. 205, f. a.* 1799. *P. densiflora* H. & B. ex R. & S. Syst. Veg. 5: 189. 1819. *P. patula* Willd. ex R. & S., l. c. *P. hundensis* H. & B. ex R. & S., l. c. *P. ardisiaefolia* HBK. Nov. Gen. & Sp. 3: 359. 1820. *Mapouria alba* Muell. Arg. Flora 59: 458. 1876. *Uragoga alba* Kuntze, Rev. Gen. 1: 299. 1891.

Santa Marta, 1,050 m., *H. H. Smith 1825* (F, W, G, P). La Paila, Cauca, *Holton 427* (P, Y). Upper Río Lebrija Valley, Santander, 400-700 m., *Killip & Smith 16289* (W, Y). Armenia, *Toro 636* (Y). Near Fredonia, Antioquía, 1,000 m., *Lehmann 3225* (W, K). La Capilla, highlands of Popayán, *Lehmann B.T.391* (Y). La Manuelita, Cauca, 1,100-1,300 m., *Pittier 801* (W, Y). Río Sucio to Río Piedras, Cauca, 1,800-2,000 m., *Pennell & Killip 8192* (W). Mesa de los Santos, Santander, 1,000-1,500 m., *Killip & Smith 14989* (W), *14990* (Y). Ibagué, *Goudot* (K). Ocaña, in forests, 1,200 m., *Schlim 539* (K). Pericos, Ocaña, 1,500 m., *Schlim 532* (K). Types of *P. patula* and *P. densiflora* collected by Humboldt and Bonpland in "America meridionali," perhaps in Colombia. Type of *P. hundensis* from Honda, *Bonpland*. Type of *P. ardisiaefolia* from Turbaco, *Bonpland*. The species ranges south to Bolivia.

A shrub or small tree, nearly glabrous; stipules large, usually obtuse, brown, caducous; leaves petiolate, elliptic-oblong, usually broadest at the middle, acute or acuminate, acute at the base, glabrous or puberulent beneath along the nerves; inflorescence terminal, pedunculate, glabrous or minutely puberulent, many-flowered, open, radiately branched at base, the bracts inconspicuous, deciduous; flowers short-pedicellate, the pedicels often elongate in fruit; corolla white, 4 mm. long, minutely puberulent or glabrous; fruit subglobose, 4.5 mm. long.

Psychotria alibertoides Wernh. Kew Bull. 1914: 68. 1914.

Type from San José, Río Putumayo, Caquetá District, *Sprague 602*.

A glabrous shrub; stipules oblong, rounded at the apex, 1 cm. long, caducous; leaves short-petiolate, obovate, 14-15 cm. long, 6.5-7 cm. wide, short-acuminate, acute at the base; inflorescence dichotomous or trichotomous, terminal, pedunculate, 7-10-flowered; calyx limb 2.5 mm. long and 6 mm. wide, obscurely dentate; corolla white, glabrous, the tube 13 mm. long, the lobes oblong, obtuse, 4.5 mm. long.

Psychotria amita, sp. nov.—Frutex vel arbor parva ut videtur dense ramosa, 1-3.5 m. alta, ramulis gracilibus teretibus puberulis vel glabris, novellis viridibus, vetustioribus ochraceis vel subferrugineis, internodiis brevibus vel elongatis; stipulae in vaginam 1-3 mm. longam persistentem truncatam puberulam vel glabram connatae, vagina in lobos 4 dentiformes remotos 0.5-1 mm. longos desinente; folia opposita, petiolo gracili 2-6 mm. longo puberulo vel glabro; lamina elliptico-oblonga vel lanceolata-oblonga, 3.5-7.5 cm. longa, 1-3 cm. lata, longe angusteque acuminata, acumine acuto, basi acuta, papyracea, marginata, supra viridis, glabra, nervis prominentibus, subtus paullo pallidior, ad nervos sparse minuteque pilosa vel puberula vel interdum glabra, costa gracili elevata, nervis lateralibus utroque latere c. 10, gracillimis, prominulis, angulo lato adscendentibus, arcuatis, marginem attingentibus, nervulis inconspicuis; inflorescentia terminalis, plerumque 1-3 cm. longe pedunculata, rarius sessilis, anguste paniculata, 2-6 cm. longa, 1.5-4.5 cm. lata, laxe pauci- vel multiflora, ramulis primariis oppositis brevibus divaricatis vel inferioribus adscendentibus, dense puberulis; flores plerumque in cymulas trifloras aggregatas dispositi, sessiles; bracteae subulatae, puberulae, 1-2 mm. longae; calyx vix 0.5 mm. longus glaber acute denticulatus vel subtruncatus; corolla alba vel viridi-alba, 3-4 mm. longa, infundibuliformis, minute puberula, tubo crasso superne vix dilato, lobis tubo duplo brevioribus, oblongis, apice acute cucullatis; fructus subglobosus glaber 4-5 mm. longus aurantiacus vel maturus niger, sulcatus, costis obtusis.—Colombia: In woods, vicinity of California, Dept. Santander, Eastern Cordillera, alt. 2,000 m., January 11-27, 1927, *Ellsworth P. Killip and Albert C. Smith 17080* (U. S. Nat. Herb. No. 1,325,729, type; duplicate in Y); in open woods, *Killip & Smith 16892* (W). Santa Marta, *Purdie* (G). Wooded banks of Río de la Baja, below La Baja, Santander, 2,200 m., *Killip & Smith 18291* (W, Y). La Baja, Santander, in forest, 3,000 m., *Killip & Smith 18124* (W, Y), *18342* (W, Y). Pica-Pica Valley, above Tapatá, Norte de Santander, 2,100-2,400 m., in dense woods, *Killip & Smith 20228* (W, Y), *20240* (W). Western slope of Mount Peña Blanca, near Charta, Santander, 2,500 m., in dense woods, *Killip & Smith 19282* (W, Y). Without locality, *Linden 1316* (K). Mountains of Characaybo, September, 1844, *Purdie* (K).

Psychotria anceps HBK. Nov. Gen. & Sp. 3: 360. 1820. *P. lucida* HBK. Nov. Gen. & Sp. 3: 361. *pl. 283*. 1820. *Mapouria biacuminata* Rusby, Descr. N. Sp. S. Amer. Pl. 136. 1920.

Type collected near the falls of Tequendama, *Bonpland*. Type of *P. lucida* from the banks of the Río Magdalena, *Bonpland*. Minca and Escalera de los Indios, 150-750 m., *H. H. Smith 1826* (F, W, S, P, type collection of *M. biacuminata*). Melgar, Cundinamarca, on open slope, 1,300-1,700 m., *Pennell 2845* (W, Y). West of San Lorenzo, Tolima, 400-600 m., *Pennell 3523* (W, G, Y). Antioquía, *Jervise* (K). Near Jirón, *Weir 86* (K). Río Ullucos, Cauca, 1,000-1,700 m., *Lehmann 4455* (K).

A glabrous shrub or small tree; stipules large, ovate, acutish, brown, caducous; leaves petiolate, oblong, oblanceolate-oblong, or rarely elliptic-oblong, short-acuminate, attenuate at the base, coriaceous, lustrous above; inflorescence terminal, pedunculate, paniculate, trichotomous, many-flowered, broad, the branches minutely puberulent or glabrate, the bracts minute; flowers sessile; calyx teeth triangular, acute or obtuse; corolla yellowish or greenish white, 4 mm. long, glabrous outside, the lobes short, rounded; fruit red, globose, coarsely costate, 3 mm. long.

Psychotria articulicymosa Wernh. Journ. Bot. 55: 253. 1917.

Type from Bogotá, Anapoirna, at 600 m., *Triana 1692*.

A glabrous shrub; stipules ovate, subcoriaceous, 7 mm. long, obtuse, finally more or less pectinate; leaves short-petiolate, papyraceous, rhombic or elliptic, 9-14 cm. long, 3.5-6 cm. wide, acuminate, cuneate at the base; inflorescence terminal, pedunculate, paniculate, the flowers sessile in cymules, the bracts small; calyx broadly lobate; corolla tube 2.5 mm. long, the lobes 3 mm. long.

Psychotria Aschersoniana Schum. & Krause, Bot. Jahrb. Engler 40: 330. 1908.

Type from humid forest near Cerro Munchique, at 2,200-2,300 m., *Lehmann 3722*. Río Cabrera, Tolima, 2,000 m., *Lehmann 2337* (W). San José, Cauca, 2,300-2,500 m., *Pennell 7616* (W, G, Y). La Cumbre, El Valle, 1,700-2,200 m., *Pennell & Killip 5790* (W, G, Y), *Killip 11419* (W, G, Y). Bogotá, *Turner 57** (K). Antioquía, 1,650 m., *Kalbreyer 1647* (K). Ocaña, 1,800 m., *Schlim 679* (K).

A shrub or small tree, the branches densely pubescent; stipules persistent, biparted, the lobes subulate, 10-15 mm. long; leaves petiolate, oblong-lanceolate, large, long-acuminate, acute at the base, densely pubescent; inflorescence terminal, pedunculate, at first dense but in fruit large and open, paniculate, the flowers short-pedicellate; calyx obsoletely denticulate; corolla yellow or white, glabrous outside; fruit black, glabrous, 4 mm. long.

Psychotria aschersonianoides Wernh. Journ. Bot. 55: 251. 1917.

Type from Colombia, *Triana 195*. Cerro Tatama, in mossy forest, 2,800-3,300 m., *Pennell 10466* (W). Páramo del Hatico, Norte de Santander, 2,900 m., *Killip & Smith 20696* (W), *20647* (W). Below Páramo de Chaquiro, Bolívar, 2,800-3,100 m., *Pennell 4363* (Y). Las Vegas, Santander, 2,600-3,000 m., in woods, *Killip & Smith 15890* (W). Without locality, *Ariste-Joseph B46* (W). Páramo Rico, Santander, 3,200 m., *Killip & Smith 17855* (W). Mount Santa Ana, Cauca, 2,700-3,000 m., *Pennell 7436* (W, G, Y). Pamplona to Toledo, Norte de Santander, 2,800-3,000 m., *Killip & Smith 19846* (W, Y). Guadalupe, 3,000 m., *Apollinaire & Arthur 114* (W). Bogotá, *Goudot* (K). Ocaña to Pamplona, 2,850 m., *Kalbreyer 1198* (K).

A shrub 1 m., high or less, often weak and procumbent, the branches short-villous; stipules short, persistent, bilobate; leaves petiolate, ovate or elliptic, 5-14 cm. long, acute or obtuse, usually rounded at the base, hispidulous, often densely so beneath; inflorescence terminal, pedunculate, thyrsiform-paniculate, dense, the bracts linear, the flowers sessile or nearly so; calyx 5-lobate, the lobes ovate, acute; corolla yellow, 1 cm. long, sparsely pilose; fruit blue, ovoid, 6 mm. long, villosulous or glabrate.

Psychotria axillaris Willd. Sp. Pl. 1: 962. 1797. *Ronabea latifolia* Aubl. Pl. Guian. 154. *pl. 59.* 1775, non *Psychotria latifolia* H. & B., 1819.

Dense forest on Río Timbiquí, *Lehmann 9020* (K, Y). Forest of Buenaventura, *Lehmann B.T.891* (K, Y). Also in Trinidad, the Guianas, and Bolivia.

A shrub about 2 m. high; stipules subulate, persistent, 2 mm. long; leaves petiolate, elliptic to oblong, 12-15 cm. long, acuminate, tapering at the base, glabrous or with minute scattered hairs beneath; inflorescences axillary, short-pedunculate, densely few-flowered, scarcely longer than the petioles, the flowers nearly sessile, white; calyx minutely 5-dentate; corolla barbate within; fruit black.

Psychotria bertieroides Wernh. Kew Bull. 1914: 67. 1914.

Type from Mocoa, Caquetá District, *Sprague 386.*

A glabrous shrub; stipules short-connate, biaristate, persistent, the aristae 3 mm. long; leaves petiolate, elliptic, 16-22 cm. long, 6-9 cm. wide, acute; inflorescence terminal, pedunculate, thyrsoid, lax, 11 cm. long and 6 cm. wide, the cymules dichotomous, subsecund; flowers sessile, 4-5 mm. long; bracts obsolete; calyx minutely denticulate; corolla sparsely pubescent; fruit costate, glabrous.

Said to be related to *P. patens* Sw.

Psychotria bogotensis, sp. nov.—Ramuli graciles subteretes, junioribus dense ferrugineo-puberulis, vetustioribus ochraceis rimosis, internodiis brevibus; stipulae caducae, late ovatae, 7-9 mm. longae, cuspidato-acuminatae, tenues, ferrugineae, fere glabrae; folia opposita, petiolo gracili 4-8 mm. longo puberulo; lamina lanceolato-oblonga, crasse papyracea, 4.5-8 cm. longa, 1-2.5 cm. lata, longe angusteque acuminata, basin versus longe sensimque angustata, supra fusca, glabra, nervis non elevatis, subtus brunnescens, ad nervos minute ferrugineo-puberula, costa gracili elevata, nervis lateralibus utroque latere c. 11, angulo acuto adscendentibus, gracilibus, prominentibus, leviter arcuatis, prope marginem conjunctis, nervulis obscuris; inflorescentiae terminales vel pseudo-axillares, sessiles vel pedunculatae, cymoso-paniculatae, 2.5-3 cm. longae et latae, laxe multiflorae, ramulis gracilibus adscendentibus minute sparseque ferrugineo-puberulis, floribus sessilibus vel brevissime pedicellatis; bracteae subulatae 1-3.5 mm. longae saepe deciduae; hypanthium obovoideum 1 mm. longum obscure puberulum vel fere

glabrum; calyx 0.8 mm. longus 5-dentatus, dentibus triangulari-ovatis acutis; corolla extus glabra tubuloso-infundibuliformis 7 mm. longa, tubo crasso superne vix dilatato, lobis anguste triangularibus tubo triplo brevioribus, acutis, intus minute puberulis; antherae subexsertae; fructus subglobosus glaber 5 mm. longus.—Colombia: Chiquinquirá, near Bogotá, alt. 2,700 m., July, 1909, *Bro. Ariste-Joseph* (U. S. Nat. Herb. No. 1,124,994, type); September 1909, *Ariste-Joseph A297* (W).

Like so many of the Psychotrias, this plant has no salient characters, but it has been impossible to refer the specimens to any of the species reported from Colombia.

Psychotria boqueronensis Wernh. Journ. Bot. 52: 315. 1914. *Coffea spicata* HBK. Nov. Gen. & Sp. 3: 371. *pl. 286.* 1820, non *Psychotria spicata* Benth. 1841.

Type from El Boquerón, 2,620 m., *Triana 1684.* Type of *C. spicata* from Colombia, *Mutis.* Chapinero, near Bogotá, 2,800 m., *Pennell 1998* (W, Y). Region of Bogotá, in 1919, *Ariste-Joseph* (W). Mountains near Bogotá, *Holton 421* (G, K, P, Y). Montserrate, near Bogotá, *Herb. Parseval-Grandmaison* (G). Tequendama(?), *André K.111* (Y). Without locality, *Triana 80* (K); *Linden 1296* (K). Bogotá, in forests, *Goudot* (K). Hills near Bogotá, *Weir* (K). Bogotá, 2,700 m., *Tracey 252* (K).

A stiff glabrous shrub; stipules short, broadly oblong 2-3-aristate, persistent; leaves short-petiolate, obovate or elliptic, 2.5-6 cm. long, obtuse or acute, acute at the base, coriaceous, bright yellow-green when dried; inflorescence terminal, pedunculate, spiciform, the flowers subsessile; calyx teeth short, triangular, acute; corolla glabrous, white, 5-6 mm. long; fruit globose, 5 mm. in diameter.

Psychotria brachiata Sw. Prodr. Veg. Ind. Occ. 45. 1788.

Armenia, Caldas, 1,100-1,400 m., *Pennell, Killip & Hazen 8661* (W, G, Y). Cascada Chorrón, Bolívar, *Pennell 4434* (Y). Los Dantos to Puerto Canoa, Bolívar, 400-800 m., *Pennell 4522* (W, Y). Dept. of Tolima, *Ariste-Joseph A776* (W). Without locality, *André 942* (K); *Triana 1705* (K). Widely distributed in tropical America.

A shrub with glabrous branches; stipules short, green, persistent, bilobate, the lobes rounded; leaves petiolate, oblong-obovate to oblong-elliptic, acuminate, acute to attenuate at the base, glabrous or nearly so; inflorescence terminal, pedunculate, paniculate, narrow, the branches short, divaricate, subtended by long narrow involute bracts, the flowers in dense bracted clusters; corolla white or blue, 1 cm. long, pubescent; fruit glabrous, blue.

Some of the Colombian specimens have much larger flower heads than any of the West Indian material, but all the specimens appear to be conspecific.

Psychotria cabuyarensis Wernh. Kew Bull. 1914: 68. 1914.

Type from Cabuyaro, Río Meta, in forest, *Sprague 154*. Wernham reports also *Barclay 739* from St. Francis Esmeraldas.

A glabrous shrub or small tree 3 m. high; stipules broadly ovate, caudate-acuminate, 1.5 cm. long and broad; leaves subsessile, obovate, 26-31 cm. long, 9-12 cm. wide, acuminate, attenuate to the base; inflorescence terminal, thyrsiform, lax, long-pedunculate, the bracts minute, caducous; flowers greenish white; fruit ovoid, 8-9 mm. long.

Psychotria carthaginensis Jacq. Enum. Pl. Carib. 16. 1760. *P. foveolata* R. & P. Fl. Peruv. 2: 59. *pl. 207, f. b.* 1799.

Type from Cartagena, *Jacquin*. Cartagena, *Bro. Heriberto 41* (W). Melgar, Cundinamarca, 1,300-1,700 m., *Pennell 2845* (G). Without locality, *Cuming* (Y). Masinga, 150 m., *H. H. Smith 1803* (Y). Enllanada, Ocaña, 1,200 m., *Schlim 584* (K). Ocaña, 1,200 m., *Schlim 511* (K). Puerto Ocaña, Río Magdalena, *Hartweg 1060* (K). Highlands of Popayán, 1,600-1,900 m., *Lehmann B.T.393*. Widely distributed in South America.

A nearly glabrous shrub; stipules obovate, obtuse, brown, caducous; leaves petiolate, lance-elliptic to oblong-obovate, acute or acuminate, acute to attenuate at the base, minutely puberulent beneath or glabrate; inflorescence terminal, pedunculate, paniculate, usually radiately branched at the base, open, many-flowered, the bracts minute, deciduous; flowers sessile; calyx denticulate; corolla white, 4 mm. long, minutely puberulent or glabrous; fruit red, 4 mm. long, costate, glabrous.

P. floribunda HBK. (Nov. Gen. & Sp. 3: 359. 1820) must be closely related, if not a synonym of this species. The type locality is given doubtfully as Turbaco.

Jacquin's brief description and his plate (Sel. Stirp. Amer. *pl. 174, f 22*) are far from satisfactory for the identification of his species, which is probably the same as either *P. foveolata* or *P. alba* R. & P. Since there is at hand a specimen from Cartagena referable to *P. foveolata*, and none referable to *P. alba*, I have assumed that the Jacquin plant is conspecific with the former.

Psychotria choriophylla, sp. nov.—Ramuli crassi, subteretes, ochracei vel brunnescentes, sublucidi, glabri, internodiis brevibus; stipulae (perfectae non visae) persistentes incrassatae, c. 4 mm. longae, parte apicali non visa; folia breviter petiolata opposita, petiolo crasso 7-13 mm. longo glabro supra late sulcato; lamina crasse coriacea, elliptica vel oblongo-elliptica, 10-12 cm. longa, 4-6.5 cm. lata, abrupte breviterque acuminata, acumine c. 6 mm. longo triangulari obtuso, basi subacuta vel obtusa vel interdum abrupte breviterque contracta, supra lucida, nervis lateralibus prominulis, glabra, subtus pallidior, lutescens, ad nervos minutissime

puberula vel fere omnino glabra, costa valida elevata, nervis lateralibus utroque latere c. 8, angulo lato adscendentibus, arcuatis, prope marginem conjunctis, nervulis prominulis reticulatis, margine saepe revoluto; inflorescentia terminalis 1 cm. longe pedunculata, cymoso-paniculata, angusta, 5 cm. longa et 2.5 cm. lata, dense multiflora, pedunculo crasso, sparse et minute scaberulo-puberulo, basi trichotoma, ramis crassissimis brevibus adscendentibus vel suberectis subcompressis minute scaberulo-puberulis, floribus sessilibus ad apices ramulorum densissime capitato-congestis, bracteis inconspicuis, late ovatis vel rotundatis, plerumque 1-2 mm. longis, apice obtusis vel rotundatis, extus minute puberulis; hypanthium late turbinatum fere 1 mm. longum glabrum; calyx 0.5 mm. longus glaber, 5-dentatus, dentibus triangularibus acutis vel obtusis minute ciliolatis, disco annulari incrassato; corolla 3 mm. longa, in alabastro apice rotundata vel obtusa, extus minute puberula, tubo obconico crasso fauce dense albido-barbato, lobis 5 oblongis obtusis patentibus intus dense papillosis tubo aequalibus vel longioribus; antherae exsertae oblongae fere 1 mm. longae.—Colombia: Provincia de Buenaventura, April, 1853(?), *Triana 3149* (Herb. Kew., type).

An isolated species, in general appearance not similar to any other known from Colombia.

Psychotria cincta, sp. nov.—Frutex vel arbor parva, ramulis gracilibus subteretibus viridibus glabris, internodiis 7-10 cm. longis; stipulae persistentes virides in vaginam adpressam 2-4 mm. longam truncatam glabram connatae, vagina in lobos 4 subulatos rigidos 7-14 mm. longos erectos desinente; folia opposita, petiolo gracili 6-15 mm. longo supra sulcato glabro; lamina elliptico-oblonga, 14-18 cm. longa, 3-6.5 cm. lata, coriacea, longe angusteque acuminata, acumine attenuato saepe falcato, basi obtusa vel acuta, glabra, late marginata, margine incrassato stramineo, costa gracili utrinque elevata, nervis lateralibus utroque latere c. 14, gracilibus, prominentibus, angulo fere recto adscendentibus, valde arcuatis, in marginem desinentibus, nervulis subtus prominulis laxe et irregulariter reticulatis; inflorescentia terminalis 7-8 cm. longe pedunculata, thyrsoideo-paniculata, 6-11 cm. longa, 3.5 cm. lata, laxe multiflora, pedunculo gracili rigido, rhachi flexuosa minute hirtella, ramis primariis brevibus rigidis alternis divaricatis vel subrecurvis, floribus cymulosis subsecundis sessilibus; bracteae oblongo-triangulares, acutae, 2 mm. longae vel multo breviores; calyx vix 0.5 mm. longus, remote obscureque denticulatus; fructus globosus 4-4.5 mm. longus glaber obscure costatus.—Colombia: In forest, Córdoba, Dagua Valley, alt. 100 m., May 6-8, 1922, *Ellsworth P. Killip 5140* (U. S. Nat. Herb. No. 1,141,369, type; duplicate in G).

This plant is a close relative of *P. patens* Sw., but it is easily distinguished by the sharply defined, pale margins of the leaves. The lateral veins run directly from the costa into the thickened margin.

Psychotria conferta Benth. Bot. Voy. Sulph. 107. 1844.

Type from Colombia.

Branches puberulent only at the apex; stipules bifid, 4 mm. long, the lobes lanceolate, acute; leaves petiolate, oval-elliptic, 10-15 cm. long or larger, acuminate, attenuate to the base, glabrous; inflorescence terminal, pedunculate, corymbose-paniculate, many-flowered, trichotomous, the bracts minute; flowers short-pedicellate; calyx 5-fid; corolla puberulent, villous in the throat, the lobes twice as long as the tube.

Psychotria cuspidata Bredem. ex R. & S. Syst. Veg. 5: 192. 1819. *Ronabea didymocarpos* A. Rich. Mém. Soc. Hist. Nat. Paris 5: 170. 1834. *P. cornigera* Benth. in Hook. Journ. Bot. 3: 227. 1841. *Palicourea didymocarpa* Griseb. Cat. Pl. Cub. 138. 1866. *Psychotria acuminata* Benth. Bot. Voy. Sulph. 107. 1844. *Uragoga cuspidata* Kuntze, Rev. Gen. 2: 960. 1891.

Santa Marta, *H. H. Smith 2083* (F, W, G, M, P). Without locality, *Hartweg 1061* (G). Huangubio, highlands of Popayán, 1,600-1,800 m., *Lehmann B.T.392* (F, G, Y). Without locality, *Lehmann B.T.1255* (Y). La Cumbre, El Valle, 1,700-2,100 m., *Killip & Hazen 11162* (W, G, Y), *Killip 5576* (W, G, Y), *11344* (W, G, Y). Frasquillo, on Río Sinu, 100-200 m., *Pennell 4598* (Y). Dauro, *Toro 1163* (Y). Mesa de los Santos, Santander, 1,500 m., *Killip & Smith 15151* (W, Y), *15154* (Y). Without locality, *Triana 1682* (K). Widely distributed in tropical America.

A slender glabrous shrub or small tree 1.5-3.5 m. high; stipules short, green, persistent, bicuspidate; leaves short-petiolate, lanceolate to elliptic-ovate, very long-acuminate, obtuse to rounded at the base or rarely acute; inflorescence terminal, pedunculate, small, corymbose-paniculate, the few branches slender, ascending or rarely reflexed; calyx truncate; corolla white, glabrous outside, about 5 mm. long.

P. acuminata is a form with narrow, extremely long-acuminate leaves, and further study may show that it is a distinct species. It was described from Gorgona and the coast of Colombia.

Psychotria daguensis, sp. nov.—Arbor parva, ramulis gracilibus subteretibus dense pilis pallidis adpresso-hirsutis, vetustioribus ochraceis, internodiis brevibus; stipulae breviter connatae, persistentes, 5-10 mm. longae, adpresso-hirsutae, ad medium bifidae, lobis lineari-lanceolatis attenuatis; folia opposita, petiolo valido 2-5 mm. longo adpresso-hirsuto; lamina subcoriacea, elliptico-oblonga, 5.5-10 cm. longa, 2-4 cm. lata, abrupte angusteque acuminata, acumine acuto, basi acuta vel obtusa, supra viridis, sparse adpresso-setosa, costa nervisque prominentibus, subtus vix pallidior, undique, ad nervos densius, pilis longis gracillimis adpresso-pilosa, costa gracili elevata, nervis lateralibus utroque latere c. 16, elevatis, gracilibus, angulo lato adscendentibus, arcuatis, parallelis, juxta

marginem conjunctis, nervulis transversis prominentibus irregularibus; inflorescentia terminalis 2-4 cm. longe pedunculata, thyrsoideo-paniculata, densissime multiflora, 2.5-3.5 cm. longa, 1-2 cm. lata, ramis primariis divaricatis, interdum fere obsoletis, crassis, dense breviterque hirsutis, floribus numerosis ad apices ramorum dense conferto-capitatis; bracteae parvae oblongae obtusae hispidulae; hypanthium dense hispidulum; calyx 0.6 mm. longus 5-partitus, lobis anguste triangularibus acutis extus dense hirtellis; fructus ovalis 3 mm. longus, obtuse costatus, dense breviterque hirsutus, calyce persistente coronatus.—Colombia: In forest, Córdoba, Dagua Valley, Dept. El Valle, alt. 100 m., May 6-8, 1922, *Ellsworth P. Killip 5135* (U. S. Nat. Herb. No. 1,140,558, type; duplicate in Y).

Psychotria decora, sp. nov.—Frutex, ramulis gracilibus subteretibus glabris, vetustioribus ochraceis vel brunnescentibus, internodiis elongatis; stipulae persistentes, breviter connatae, ovatae, 2.5 mm. longae, glabrae, in aristam 2 mm. longam desinentes; folia opposita, petiolo 4-6 mm. longo valido marginato, margine undulato; lamina oblonga, 12-14.5 cm. longa, 4-5 cm. lata, abrupte acuminata, acumine angusto attenuato 1.5-2 cm. longo, basi acuta, papyracea, marginata, glabra, supra fusca sublucida, costa nervisque prominulis sed non conspicuis, subtus concolor, costa gracili elevata, nervis lateralibus utroque latere c. 7, angulo lato adscendentibus, gracillimis, prominulis, leviter arcuatis, juxta marginem conjunctis, nervulis vix prominulis irregulariter reticulatis; inflorescentia terminalis 5 cm. longe pedunculata, cymoso-paniculata, laxe pauciflora, 6.5 cm. longa, 5 cm. lata, pedunculo gracili puberulo, ramulis oppositis gracilibus adscendentibus puberulis; bracteae subulatae 1-1.8 mm. longae; cymulae triflorae, pedicellis 1-5 mm. longis; hypanthium turbinatum 1 mm. longum puberulum; calyx 0.5 mm. longus 5-dentatus, dentibus minutis triangularibus acutis; corolla ochroleuca infundibuliformis 8 mm. longa extus minute puberula, tubo gracili basi 0.5 mm. lato, superne sensim dilatato, fauce 2.5 mm. lato, lobis subrotundatis 1.5 mm. longis.—Colombia: In forest along the river, opposite Boca Carare, Dept. Antioquía, alt. 125 m., January 14, 1918, *Francis W. Pennell 3823* (Herb. N. Y. Bot. Gard., type).

An isolated species, noteworthy for its handsome leaves and long slender corolla.

Psychotria emetica L. f. Suppl. Pl. 144. 1781. *Cephaelis emetica* Pers. Syn. Pl. 1: 203. 1805. *Uragoga emetica* Baill. Hist. Pl. 7: 371. 1880.

Type from Girón, *Mutis*. Magdalena Valley, *Dawe* (Y). Puerto Berrio, *Toro 1124* (Y). Boca Verde, on Río Sinu, 90-120 m., *Pennell 4240* (Y). Cisneros, El Valle, 300-500 m., *Killip 11466* (W). Without locality, *Triana 1722* (K). Also in Central America and Bolivia.

Stems simple, suffrutescent, 30 cm. high or more, puberulent; stipules distinct, 3-4 mm. long, triangular-lanceolate, acuminate,

deciduous; leaves short-petiolate, elliptic-oblong to oblanceolate-oblong, acute or acuminate, at the base acute to long-attenuate, glabrous above, puberulent beneath; inflorescences axillary, about as long as the petiole, solitary or geminate, bearing a few capitate subsessile flowers, sometimes bifurcate, the bracts minute; calyx obscurely dentate; corolla white, 5 mm. long, glabrous outside; fruit 6 mm. long.

The plant has been used as a source of ipecac, but it is said to be inferior to *Cephaelis Ipecacuanha*.

Psychotria erythrocephala (Schum. & Krause), comb. nov. *Uragoga erythrocephala* Schum. & Krause. Bot. Jahrb. Engler 40: 343. 1908. *P. Spraguei* Wernh. Kew Bull. 1914: 67. 1914.

Dense woods near Buenos Aires and Quilichao, *Lehmann 5442* (F, type collection). In thicket, Cuatro Esquinas, Cauca, 1,700-1,800 m., *Pennell & Killip 6368* (W, G, Y). In woodland, Morales, Cauca, 1,700 m., *Pennell & Killip 8292* (W). Mesa de los Santos, Santander, 1,500 m., in woods, *Killip & Smith 15132* (W, Y), *15070* (W). Ocaña, *Purdie* (G, K). Highlands of Popayán, 1,500-1,800 m., *Lehmann B.T.396* (K, Y), *B.T.1278*. El Hatico and Aganche, 1,200-1,600 m., *Lehmann B.T.517* (K, Y). Caracoles, *Kalbreyer 1055* (K). Without locality, *Triana 1708* (K). Type of *P. Spraguei* from San Agustín, Tolima, *Sprague 304*.

A shrub 1-3.5 m. high, the branches hirsute; stipules persistent, bifid, the lobes linear, up to 2.5 cm. long; leaves petiolate, lanceolate or narrowly oblong, large, long-acuminate, acute to attenuate at the base, hirsute or hispidulous; inflorescence head-like, terminal, pedunculate, dense and many-flowered; bracts lanceolate or linear, red; calyx lobes 5, linear, 2-4.5 mm. long; corolla pink, glabrate, 6 mm. long; fruit hispid, ellipsoid.

Psychotria familiarifolia Wernh. Journ. Bot. 55: 253. 1917. Type from Colombia, *Triana 134*.

A glabrous shrub; stipules oblong, obtuse, 8 mm. long; leaves coriaceous, petiolate, lanceolate, acuminate, narrowed to the base, 8-12 cm. long, 2.5-4 cm. wide; inflorescence terminal, cymose-umbellate, trichotomous, lax, the bracts small, ovate-oblong; calyx lobate; corolla glabrous outside, the tube 3 mm. long, the lobes 1.5 mm. long, obtuse.

Psychotria Fendleri Standl. Contr. U. S. Nat. Herb. 18: 129. 1916.

Onaca, 750 m., *H. H. Smith 1832* (F, W, G, M, P, Y). Mamatoca, 30 m., *H. H. Smith 1802* (F, G, M, P, Y). Río Frío, Santa Marta Mountains, *Walker 1228* (W, G, M). Near Bonda, 45 m., *H. H. Smith 1803* (Y). Also in Panama.

A glabrous shrub 1-2 m. high; stipules brown, obtuse, 7-9 mm. long, caducous; leaves petiolate, elliptic-obovate or cuneate-obovate, thick, usually rounded at the apex and very shortly produced, the

tip obtuse, attenuate to the base and decurrent; inflorescence terminal, cymose-paniculate, pedunculate, many-flowered, radiately branched from the base, the flowers mostly sessile, the bracts minute, caducous; calyx shortly and obtusely dentate; corolla white, 5 mm. long, glabrous outside.

This is probably only a form of *P. carthaginensis*.

Psychotria fortuita, sp. nov.—Frutex 1-3.5 m. altus, ramulis gracilibus subteretibus glabris, vetustioribus ferrugineis rimulosis, internodiis plerumque elongatis; stipulae caducae, ovatae, obtusae vel acuminatae, tenues, ferrugineae, glabrae, fere liberae; folia opposita, petiolo gracili 4-13 mm. longo glabro; lamina lanceolato-oblonga, papyracea, 6-15 cm. longa, 2-4.5 cm. lata, longe angusteque acuminata, acumine acuto, basi acuta vel saepius subabrupte longeque angustata et decurrens, supra obscure viridis glabra, nervis manifestis sed vix elevatis, subtus paullo pallidior, ad axillas costarum saepius obscure domatiata et obsolete barbellata, aliter glabra, costa gracili elevata, nervis lateralibus utroque latere c. 12, angulo lato adscendentibus, gracilibus, prominulis, arcuatis, prope marginem conjunctis et interdum nervum collectivum efformantibus, nervulis obscuris; inflorescentia terminalis vel pseudo-axillaris, vulgo 1-4 cm. longe pedunculata, cymoso-paniculata, laxe multiflora, 3-7 cm. longa, 4-10 cm. lata, ramis primariis gracilibus elongatis, infimis verticillatis, superioribus oppositis divaricatis vel adscendentibus glabris; flores sparsi, plerumque 1-4 mm. longe pedicellati, rarius sessiles; bracteae minutae deciduae; hypanthium late turbinatum glabrum 1 mm. longum; calyx 0.5 mm. longus glaber remote 5-dentatus, dentibus late triangularibus acutis; corolla alba vel viridi-alba 3-3.5 mm. longa tubuloso-infundibuliformis extus glabra, tubo crasso superne vix dilatato, lobis oblongo-triangularibus obtusis tubo duplo brevioribus.—Colombia: In damp forest, glen near a stream, Las Nubes, alt. 1,350 m., December 17, 1898, *H. H. Smith 1821* (Herb. Field Mus. No. 138,669, type; duplicates in W, G, M, P, Y; distributed as *Palicourea Pavetta*). Tona, Santander, in woods, 1,900-2,100 m., *Killip & Smith 19454* (W). Loso, Norte de Santander, in woods along stream, 2,200-2,400 m., *Killip & Smith 20425* (W, Y). Río Suratá Valley, Santander, 2,000-2,300 m., edge of forest, *Killip & Smith 16617* (W), *16679* (W, Y), *16739* (W, Y).

Psychotria gallerana, sp. nov.—Arbor parva, ramulis gracilibus subteretibus, novellis sordide villosis, vetustioribus ochraceis vel brunneis, internodiis brevibus vel elongatis; stipulae 4-6 mm. longae, subacutae, in vaginam persistentem dorso villosulam connatae; folia opposita, petiolo gracili 3-9 mm. longo villosulo vel glabrato; lamina elliptico-oblonga vel obovato-oblonga, 6-9.5 cm. longa, 2.5-3.5 cm. lata, abrupte longiacuminata, acumine angusto obtuso, basin versus cuneatim angustata, basi ipsa acuta vel subobtusa, subcoriacea, marginata, supra viridis, ad costam villosula, nervis manifestis sed non elevatis, subtus pallidior, ad nervos villosula, costa gracili elevata, nervis lateralibus utroque latere

c. 15, angulo lato adscendentibus, gracilibus, prominentibus, valde arcuatis, marginem attingentibus, nervulis obsoletis; inflorescentia terminalis, sessilis vel 1 cm. longe pedunculata, cymoso-paniculata, 3-4 cm. longa, 4-7 cm. lata, laxe multiflora, basi 2-5-ramosa, ramis adscendentibus sparse puberulis, cymulis paucifloris, floribus sessilibus vel 1-3 mm. longe pedicellatis; bracteae ovatae vel oblongae, 1-2 mm. longae, obtusae vel acutae, glabrae; hypanthium fere 1 mm. longum glabrum; calyx 1-1.5 mm. longus glaber 5-partitus, lobis obovato-ovalibus apice rotundatis et apiculatis; corolla infundibuliformis, in alabastro 4.5 mm. longa, extus glabra, lobis tubo brevioribus; fructus niger ellipsoideus 5 mm. longus costatus glaber, calyce persistente coronatus.—Colombia: In forest, La Gallera, Micay Valley, Dept. El Cauca, alt. 1,900 m., July 1, 1922, *Ellsworth P. Killip 7943* (U. S. Nat. Herb., No. 1,140,632, type; duplicates in G and Y).

Psychotria graciliflora Benth. ex Oerst. Kjob. Vid. Medd. 1849-50: 35. 1852.

Cupica, *Seemann* (K). Also in Central America.

Glabrous; stipules connate, 3-5 mm. long, deciduous, acuminate, entire or minutely bidentate; leaves short-petiolate, oval to elliptic-oblong, small, acuminate, long-attenuate to the base; inflorescence terminal, pedunculate, cymose-paniculate, lax, trichotomous, equaling or shorter than the leaves; calyx truncate; corolla 4 mm. long, pilose in the throat.

Psychotria grandis Sw. Prodr. Veg. Ind. Occ. 43. 1788.

In forest, Don Diego, *H. H. Smith 2648* (F, W, Y). Also in Central America and the West Indies.

A large shrub or small tree, nearly glabrous; stipules broadly ovate, cuspidate-acuminate, large, subpersistent; leaves nearly sessile, cuneate-obovate or oblong-obovate, large, abruptly short-acuminate, attenuate to the base, glabrous; inflorescence terminal, cymose-paniculate, long-pedunculate, radiately branched at the base, the branches minutely puberulent; flowers sessile, the bracts deciduous; calyx obscurely denticulate; corolla whitish, 3 mm. long, glabrous outside, barbate in the throat.

Psychotria halophiloides Wernh. Journ. Bot. 55: 254. 1917.

Type from Gallego, Quindío, at 2,280 m., *Triana 135*.

A glabrous shrub; stipules oblong, rounded-obtuse, deciduous, 1 cm. long; leaves short-petiolate, coriaceous, elliptic, about 7 cm. long and 3 cm. wide, acuminate at each end; inflorescence terminal, pedunculate, cymose-corymbose, 5-6-branched at the base, dense, the bracts minute; flowers very shortly pedicellate; calyx subentire; corolla tube 5-6 mm. long, the lobes 1.7 mm. long.

Psychotria Hartwegiana, nom. nov. *Coffea marginata* Benth. Pl. Hartweg. 193. 1845, non *Psychotria marginata* Sw. 1788.

Type from the ascent to Páramo de Guanacas, Prov. Popayán, *Hartweg 1059*. Delicias, Andes of Popayán, 3,000-3,600 m., *Lehmann 8460* (F, K), *4473* (F, K). Headwaters of Río López, Cauca, 2,500 m., *Pittier 1099* (W). Paletará, Cauca, 3,000-3,200 m., *Pennell 6959* (W, G, Y); at 2,900-3,400 m., *Lehmann 3533* (K). Without locality, *Purdie* (K). Also in Bolivia.

Plants low, simple, suffrutescent, the branches glabrous or at first puberulent; stipules caducous, broadly ovate, about 4 mm. long; leaves large, petiolate, elliptic to oblong-ovate or lance-oblong, acuminate, at the base acute or attenuate, puberulent or pilose beneath, at least along the nerves, paler beneath; inflorescence axillary, long-pedunculate, corymbose-paniculate, puberulent or short-pilose, rather dense, the branches divaricate, the flowers sessile or nearly so, glomerate; calyx 5-dentate; corolla yellowish white, glabrous, 5 mm. long; fruit nearly 5 mm. long.

Psychotria Hazenii, sp. nov.—Frutex 1.5-metralis ut videtur dense ramosus, ramulis gracilibus teretibus viridescentibus, novellis dense breviterque pilosis, internodiis brevibus vel elongatis; stipulae 6-9 mm. longae, persistentes, virides, breviter connatae, glabrae vel basi pilosulae, ad medium vel profundius bifidae, lobis linearilanceolatis longiattenuatis erectis; folia opposita, petiolo gracili 5-14 mm. longo pilosulo; lamina crasse membranacea, ellipticooblonga vel lanceolato-oblonga, 4.5-7 cm. longa, 1.5-2.5 cm. lata, longe angusteque acuminata, acumine subacuto, basi acuta, supra laete viridis, ad costam prominulam sparse pilosula, nervis inconspicuis, subtus pallidior, rhaphidibus elongatis pallidis conspersa, ad nervos minute hirtella, costa gracili elevata, nervis lateralibus utroque latere c. 17, gracilibus, prominentibus, angulo lato adscendentibus, leviter arcuatis, prope marginem nervum collectivum efformantibus, nervulis paucis prominulis laxe reticulatis; inflorescentia terminalis, sessilis vel 1-3 cm. longe pedunculata, basi saepe trichotoma, 1.5-3 cm. longa, densa, interdum subcapitata, ramis primariis obsoletis vel usque ad 1 cm. longis, fere glabris, floribus sessilibus ad apices ramorum dense confertis; bracteae lanceolatae vel lineares, 5-11 mm. longae, longe attenuatae, virides, glabrae, imbricatae; calyx 1.8-2.5 mm. longus glaber profunde 5-fidus, laciniis lanceolato-linearibus attenuatis glabris; fructus caeruleus glaber ellipsoideus 4-5 mm. longus sulcatus, costis acutiusculis, carpellis facie interiore profunde angusteque sulcatis.—Colombia: Forest above La Cumbre, Dept. El Valle, alt. 1,800-2,200 m., May 14-19, 1922, *Ellsworth P. Killip 5573* (U. S. Nat. Herb. No. 1,140,570, type; duplicates in G and Y). Río Santa Rita, Salento, Caldas, in dense forest, *Killip & Hazen 9002* (W, G, Y).

A well-defined species, apparently marked by the small leaves and small dense inflorescence with large foliaceous bracts.

Psychotria hebeclada DC. Prodr. 4: 513. 1830. *P. justicioides* Schlecht. Linnaea 9: 596. 1834. *Palicourea molliramis* Schum. & Krause, Bot. Jahrb. Engler 40: 331. 1908.

Santa Marta, 450 m., *H. H. Smith 1799* (F, W, G, M, P). Near Cacagualito, 450 m., *H. H. Smith 1799* (Y). Don Amo, 600 m., *H. H. Smith 1799* (Y). Jiracasaca, 750 m., *H. H. Smith 1799* (Y). Minca, 600 m., *H. H. Smith 1799* (Y). Don Diego, *H. H. Smith 1799* (Y). South of Mamatoca, 300 m., *H. H. Smith 2797* (Y). Dagua, Buenaventura, 200-500 m., *Lehmann 5113* (F). La Paila, Cauca, May 18, 1853, *Holton* (K, Y). Río Frío, Magdalena, *Pittier 1631* (W, Y). Magdalena, *Holton 425* (P, Y). Turbaco, *Bro. Heriberto 414* (W). Dense wet forest near Las Juntas, Río Dagua, Cauca, 200-500 m., *Lehmann 4667* (F, type collection of *P. mollramis*). Without locality, *Triana 1681* (K). Ranging to Mexico; also in Ecuador.

A shrub, sometimes 3 m. high, the young branches densely puberulent; stipules short, green, persistent, bidentate; leaves thin, petiolate, ovate to oblong-elliptic, long-acuminate, acute or attenuate at the base, finely pubescent, at least beneath; inflorescence terminal, pedunculate, thyrsoid-paniculate, dense, many-flowered, densely pubescent; calyx 5-lobate, the lobes short, ovate, acute or obtuse; corolla whitish, 5 mm. long, pubescent; fruit glabrate, subglobose, 4 mm. long.

Psychotria Hindsii, sp. nov.—Ramuli graciles subteretes vel subcompressi, novellis dense ferrugineo-villosulis, internodiis elongatis; stipulae caducae, ferrugineae, oblongae vel ovatae, 10-13 mm. longae, acuminatae vel cuspidato-acuminatae, dense ferrugineo-villosulae; folia breviter petiolata opposita, petiolo 0.8-3 cm. longo gracili dense ferrugineo-villosulo; lamina crasse membranacea, oblonga vel oblanceolato-oblonga, 12-22 cm. longa, 4-7.5 cm. lata, acuminata vel longe acuminata, acumine angusto attenuato, basin versus longe angustata, superne fusca sublucida ad nervos vel in tota superficie ferrugineo-villosula, nervis non elevatis, subtus paullo pallidior, ubique puberula vel ad nervos breviter pilosula, costa gracili elevata, nervis lateralibus utroque latere c. 17, gracilibus, prominentibus, subarcuatis, angulo acuto adscendentibus, juxta marginem conjunctis, nervulis paucis prominulis laxe reticulatis; inflorescentia terminalis 2-5 cm. longe pedunculata, cymoso-paniculata, laxe multiflora, 5-9 cm. longa et fere aequilata, pedunculo gracili dense ferrugineo-villosulo, ramis oppositis vel infimis verticillatis, gracilibus, adscendentibus et saepe curvis, puberulis, floribus sessilibus ad apices ramulorum glomeratis, bracteis triangularibus acutis vel acuminatis 1-2 mm. longis persistentibus; hypanthium obovoideum 0.5 mm. longum minute puberulum; calyx cupularis 0.5 mm. longus subtruncatus et remote obscureque denticulatus; corolla 3.5 mm. longa extus sparse et minute puberula, tubo cylindrico superne vix dilatato fauce non barbato, lobis 4 oblongis obtusis tubo paullo brevioribus.—Colombia: Tumaco, in 1841, *Hinds* (Herb. Kew., type). Between Juntas and Popayán, *Lehmann B.T.695* (Y).

Psychotria Holtonii, sp. nov.—Ramuli densissime breviterque pilosi; stipulae deciduae, non visae; folia opposita, petiolo 1.5-2 cm. longo gracili hispidulo; lamina elliptico-oblonga, c. 20 cm. longa et 7.5 cm. lata, anguste et subabrupte acuminata, basi acuta, crasse papyracea, supra viridis glabra, nervis prominentibus, subtus pallidior, ad nervos sparse breviterque pilosula, costa gracili elevata, nervis lateralibus utroque latere c. 16, angulo lato adscendentibus, gracilibus, prominentibus, arcuatis, marginem attingentibus, nervulis transversis prominentibus parallelis nervulis reticulatis connexis; inflorescentia terminalis 3 cm. longe pedunculata, 5 cm. longa et 4.5 cm. lata, densissime multiflora, fere capitiformis, pedunculo crasso hispidulo, ramulis primariis 5-7 mm. longis; bracteae ovatae 10-13 mm. longae acutae vel acuminatae nervosae glabrae; flores congesti sessiles vel subsessiles; calyx 5-partitus, laciniis linearibus 5-7 mm. longis obtusis glabris nervosis; fructus subglobosus 4-5 mm. longus glaber sulcatus.—Colombia: Las Minas, September 19, 1853, *I. F. Holton* (Herb. N. Y. Bot. Gard., type). Forest above Cascada Chorrón, Bolívar, 2,000-2,500 m., *Pennell 4409* (Y).

The available material is somewhat imperfect and incomplete, and unsatisfactory for study, but the species represented is, apparently, a quite distinct one, with no very close relatives.

Psychotria horizontalis Sw. Prodr. Veg. Ind. Occ. 44. 1788. *P. divaricata* H. & B. ex R. & S. Syst. Veg. 5: 191. 1819. *P. glaucescens* HBK. Nov. Gen. & Sp. 3: 358. 1820.

Santa Marta, 450 m., *H. H. Smith 393* (F, G, M, P). Near Masinga, 300-450 m., *H. H. Smith 393* (Y). Campo Alegre, 450 m., *H. H. Smith 393* (Y). Chaca, 600 m., *H. H. Smith 393* (Y). Don Diego, *H. H. Smith 2647* (F, W, M, Y). Turbaco, *Goudot* (K). Without locality, *Cuming* (K); *Linden 1389* (K). Salango, *Sinclair* (K). Santa Marta, 900 m., *Schlim 917* (K). Ocaña, 1,200 m., *Schlim 671* (K). Also in Ecuador, the West Indies, Central America, and Mexico.

A shrub 1-3 m. high, glabrous or nearly so; stipules ovate-triangular, acute or obtuse, caducous, 3-8 mm. long; leaves short-petiolate, elliptic to oblong-lanceolate, acuminate at the apex, acute or obtuse at the base, bright grayish green when dry, glabrous or nearly so; inflorescence terminal, pedunculate, small and rather few-flowered, usually 5-rayed at the base, the branches puberulent, the flowers mostly sessile, the bracts minute, caducous; calyx deeply 5-lobed, the lobes elongate, linear; corolla white, 3-4 mm. long, glabrous; fruit red, glabrous, 4 mm. long.

Psychotria hylocharis, sp. nov.—Frutex 1.5 m. altus, ramulis gracillimis olivaceis dense subadpresso-pilosis vel puberulis; stipulae in vaginam adpresso-pilosulam 1.5 mm. longam persistentem truncatam connatae, in setas 4 graciles 3-6 mm. longas erectas desinentes; folia opposita, petiolo gracili 2-7 mm. longo pilosulo; lamina membranacea, anguste elliptico-oblonga vel obovato-oblonga,

6-14.5 cm. longa, 2-4 cm. lata, longe angusteque acuminata, basin versus angustata vel tantum acuta, supra viridis, ad costam patenti-pilosa, nervis prominentibus, subtus pallidior, ad nervos breviter pilosa, costa gracili elevata, nervis lateralibus utroque latere c. 13, gracilibus, prominentibus, angulo lato adscendentibus, leviter arcuatis, juxta marginem conjunctis, nervulis transversis prominulis subparallelis; inflorescentia terminalis 2-4 cm. longe pedunculata, cymoso-paniculata, c. 4 cm. longa et lata, laxissime multiflora, pedunculo gracillimo, ramis divaricatis vel adscendentibus pilosulis; bracteae anguste lineares 2-7 mm. longae virides glabrae; flos centralis cymulae sessilis, ceteris usque ad 2.5 mm. longe pedicellatis vel subsessilibus; hypanthium 0.5 mm. longum puberulum vel glabratum; calyx 0.5 mm. longus 5-dentatus, dentibus triangulari-ovatis acutis; corolla alba tubuloso-infundibuliformis 3 mm. longa, extus minutissime puberula, tubo superne vix dilatato, lobis ovalibus obtusis tubo duplo brevioribus; antherae subexsertae; fructus subglobosus 2.5 mm. diam. caeruleus crasse costatus.—Colombia: Las Dantas to Puerto Canoa, on Río Esmeralda, Dept. Bolívar, in forest, alt. 400-800 m., February 27, 1918, *Francis W. Pennell 4532* (Herb. N. Y. Bot. Gard., type). Antizales, Bolívar, 1,700-2,000 m., in forest, *Pennell 4442* (Y). Damp forest, Don Amo, 600 m., *H. H. Smith 2408* (Y).

This resembles somewhat *P. hebeclada* DC., but that species differs in its dense thyrsiform inflorescence, copious pubescence, and more developed calyx lobes.

Psychotria involucrata Sw. Prodr. Veg. Ind. Occ. 45. 1788.

Villavicencio, 600 m., on moist forested slope, *Pennell 1535* (G, Y). Forests of Río Timbiquí, 200 m., *Lehmann 8981* (G, K, Y). Widely distributed in tropical America.

A slender, nearly glabrous shrub; stipules short, green, persistent, truncate, biaristate; leaves petiolate, ovate to elliptic, acuminate at the apex, contracted and decurrent at the base, glabrous; inflorescence terminal, pedunculate, dense, few-flowered, rounded, the flowers sessile or nearly so, the outer bracts narrow, longer than the flowers; fruit globose, black, 4 mm. long.

Psychotria Killipii, sp. nov.—Frutex omnino glaber, ramulis gracilibus subteretibus rimosis ochraceis, internodiis elongatis; stipulae in vaginam 2-3 mm. longam persistentem laxam basi incrassatam connatae, parte superiore tenui interdum decidua; folia opposita, petiolo gracili 3-5 mm. longo; lamina coriacea, anguste oblongo-lanceolata, 4.5-6 cm. longa 8-13 mm. lata, longe angusteque acuminata, basi acuta, supra in sicco fusco-viridis, subtus paullo pallidior, costa nervisque utrinque obscuris vel obsoletis, nervis lateralibus utroque latere 4-5, angulo acutissimo adscendentibus; inflorescentia terminalis vel pseudo-axillaris, 2-5 cm. longe pedunculata, cymoso-paniculata, laxe pauciflora, 2-3.5 cm. longa et aequilata, pedunculo gracili, ramulis gracilibus oppositis, cymulis

trifloris, pedicellis 1-4 mm. longis; bracteae triangulares vel subulatae 0.5-1.5 mm. longae; calyx fere 1 mm. longus 5-dentatus, dentibus late triangularibus obtusis; corolla alba in alabastro 2 mm. longa, lobis roseis; fructus niger globosus 4-5 mm. longus obtuse leviterque costatus.—Colombia: In clearing, La Gallera, Micay Valley, Dept. El Cauca, alt. 1,500-1,800 m., July 1, 1922, *Ellsworth P. Killip 7892* (U. S. Nat. Herb. No. 1,140,630, type; duplicate in Y).

A relative of *P. pendula* (Jacq.) Urban and *P. crassa* Benth., this plant is easy of recognition because of the narrow elongate leaves.

Psychotria lassula, sp. nov.—Frutex c. 60 cm. altus omnino glaber, ramulis crassis subteretibus lucidis rimosis ochraceis vel brunneis, internodiis 1.5-4 cm. longis; stipulae in vaginam truncatam induratam 2-3 mm. longam connatae, persistentes; folia opposita, petiolo crasso 2-5 mm. longo; lamina coriacea, oblonga, 4-7.5 cm. longa, 1-2.5 cm. lata, obtusa vel subacuta, basi acuta vel obtusa, marginata, supra viridis, rhaphidibus minutis conspersa, nervis occultis, subtus paullo pallidior, costa crassiuscula prominula, nervis lateralibus utroque latere c. 4 obscuris, angulo acutissimo adscendentibus; inflorescentia terminalis, cymoso-paniculata, 1-3 cm. longe pedunculata, laxe multiflora, 2-5 cm. longa, 4-8 cm. lata, ramis paucis, infimis verticillatis divaricatis vel recurvis crassiusculis, cymulis paucifloris, pedicellis 1-4 mm. longis; bracteae triangulares 0.5-1 mm. longae acutae; fructus ruber globosus 4-5 mm. longus leviter sulcatus, costis latis rotundatis.—Bolivia: Polo-Polo, near Coroico, North Yungas, alt. 1,100 m., October-November, 1912, *Otto Buchtien 5767* (U. S. Nat. Mus. No. 1,177,869, type).—Colombia: Buenaventura, El Valle, in coastal thickets, *Killip 11759* (W, G, Y). —Peru: Cerro de Campana, *Spruce* (K).

From *P. pendula* (Jacq.) Urban, of the Antilles, this is distinguished by its longer, relatively narrower, and chiefly obtuse (rather than abruptly acuminate) leaves. From *P. paramorum* it differs also in the few and obscure nerves of the leaves.

Psychotria lateriflora, sp. nov.—Frutex 2-metralis, ramulis crassis glabris, internodiis brevibus; stipulae deciduae, 2-2.5 cm. longae, ovatae, profunde laciniatae, virides, glabrae; folia opposita, petiolo gracili 2-4 cm. longo glabro; lamina obovata vel elliptico-obovata, 14-17.5 cm. longa, 6-7.5 cm. lata, apice obtusa, brevissime abrupteque acuminata, acumine obtuso, basi acuta, papyracea, marginata, supra viridis, glabra, rhaphidibus minutis conspersa, nervis manifestis sed non elevatis, subtus pallida, ad nervos sparse puberula, costa valida prominente, nervis lateralibus utroque latere c. 17, gracilibus, prominulis, angulo lato adscendentibus, leviter arcuatis, in nervum distinctum collectivum prope marginem conjunctis, nervulis obsoletis; inflorescentiae axillares, solitariae, 7-18 cm. longe pedunculatae, cymoso-umbellatae, trichotomae, pedunculo gracili glabro, apice bracteis 2 ovatis 8-10 mm. longis viridibus

onusto, ramulis primariis 1-2.5 cm. longis adscendentibus glabris, floribus sessilibus ad apices ramulorum dense congestis; bracteae plerumque 4-7 mm. longae, ovatae vel oblongae, obtusae, virides, glabrae; calyx 1-1.5 mm. longus 5-dentatus, dentibus triangularibus; fructus ovalis 3-4 mm. longus profunde sulcatus, in sicco albidus, costis acutiusculis.—Colombia: In forest above La Cumbre, Dept. El Valle, Cordillera Occidental, alt. 1,800-2,200 m., May 14-19, 1922, *Ellsworth P. Killip 5591* (U. S. Nat. Herb. No. 1,140,573, type).

Although clearly a relative of *P. macrophylla* R. & P., this plant is conspicuously distinct in its lacinitate stipules and umbelliform inflorescence.

Probably conspecific is a rather unsatisfactory specimen from Mount San Martín, near Charta, Santander, *Killip & Smith 19203* (W).

Psychotria limonensis Krause, Bot. Jahrb. Engler 54: Beibl. 119: 43. 1916. *Mapouria latifolia* Rusby, Descr. N. Sp. S. Amer. Pl. 137. 1920.

Cacagualita, in damp forest, 450 m., *H. H. Smith 1805* (F, W, M, type collection of *M. latifolia*); in mountain forest, 750 m., *H. H. Smith 2405* (F, W, M, P). Also in Central America.

A nearly glabrous shrub or small tree; stipules ovate, acuminate, large, caducous; leaves petiolate, elliptic-ovate, 6-12 cm. wide, abruptly short-acuminate at the apex, abruptly contracted at the base; inflorescence terminal, sessile, much branched, the flowers mostly short-pedicellate, the bracts caducous; calyx minutely denticulate; corolla white, 5-6 mm. long, glabrous outside, the throat barbate.

Psychotria longirostris (Rusby), comb. nov. *Rudgea longirostris* Rusby, Descr. N. Sp. S. Amer. Pl. 143. 1920.

Sierra del Líbano, 1,800 m., in dense mountain forest, *H. H. Smith 1819* (Y, type; F, W, M, P, S). Region of Santa Marta, *H. H. Smith 1821* (Y). In dense woods, Pica-Pica Valley above Tapatá, Norte de Santander, 2,100-1,400 m., *Killip & Smith 20273* (W, Y). Río Suratá Valley above Suratá, Santander, 2,000-2,300 m., *Killip & Smith 16589* (W, Y). Southern slope of Mount San Martín, Santander, in dense woods, 2,300-2,500 m., *Killip & Smith 19187* (W, Y), *19154* (W, Y). Charta, Santander, 2,000 m., *Killip & Smith 19020* (W). Loso, Norte de Santander, woods along stream, 2,200-2,400 m., *Killip & Smith 20427* (W, Y). La Gallera, Micay Valley, Cauca, in forest, 1,400 m., *Killip 7748* (W, G, Y). Ocaña, 1,800 m., *Schlim 582* (K).

A shrub 2.5-4.5 m. high, said, perhaps incorrectly, to be sometimes scandent; stipules 2.5-3.5 mm. long, persistent, green, short-connate, bidentate at the apex; leaves slender-petiolate, narrowly

elliptic-oblong or rarely elliptic-oblong, 7-12.5 cm. long, narrowly long-acuminate, acute at the base, glabrous or sometimes minutely pilosulous beneath along the costa; inflorescence terminal, sessile or pedunculate, broadly paniculate, the flowers sessile; calyx truncate and obsoletely denticulate; corolla white, 6 mm. long, glabrous or minutely puberulent; fruit blue, 4 mm. long.

Psychotria longissima, sp. nov.—Frutex, ramulis crassis subteretibus in sicco ochraceis glabris, internodiis plerumque elongatis; stipulae deciduae, virides, elliptico-ovatae, 1-1.5 cm. longae, acutae, glabrae; folia opposita, petiolo crasso 1.2-2.5 cm. longo glabro; lamina elliptico-oblonga vel obovato-oblonga, 15-24 cm. longa, 5-7 cm. lata, anguste acuminata, basin versus angustata, papyracea, marginata, supra viridis glabra, nervis manifestis sed non elevatis, subtus pallidior, glabra vel ad costam sparse puberula, rhaphidibus saepe conspersa, costa valida prominente, nervis lateralibus utroque latere c. 14, gracillimis, prominulis, angulo acuto adscendentibus, arcuatis, juxta marginem conjunctis; inflorescentia axillaris, 10-18 cm. longe pedunculata, cymoso-paniculata, 3-7 cm. longa et lata, laxa vel densa, multiflora, basi trichotoma, ramulis brevibus vel elongatis oppositis validis divaricatis sparse puberulis vel glabris; bracteae virides, ovatae vel lanceolatae, 6-10 mm. longae, acutae, puberulae vel fere glabrae, persistentes; flores conferti sessiles; calyx 2-3 mm. longus glaber vel puberulus profunde 5-lobus, lobis oblongis vel lanceolatis acutis; fructus ovalis 5-6 mm. longus profunde sulcatus, costis acutis.—Colombia: In forest, Córdoba, Dept. El Valle, alt. 80-100 m., May 6-8, 1922, *Ellsworth P. Killip 5134* (U. S. Nat. Herb. No. 1,140,557, type; duplicates in G and Y). Buenaventura, El Valle, in coastal thickets, *Killip 11714* (W, Y); in dense wet forest, *Lehmann B.T.1125* (K, Y).

The corolla is described in the collector's notes as "white" or "pale greenish yellow," but there are no corollas on the specimens examined. *Psychotria longissima* is an ally of *P. macrophylla* R. & P., differing in the form of the inflorescence, the long peduncles, and the conspicuous large bracts.

Psychotria lupulina Benth. in Hook. Journ. Bot. 3: 230. 1841.

Isla Brava, Magdalena, *André 272* (F, K, Y). Corazón, 3,200 m., *André K.1130* (F, K, Y). San Martín de Loba, Bolívar, *Curran 69* (W), *196* (W, G). Puerto Ocaña, Magdalena, *Holton 408* (G, P, Y). Ocaña, *Purdie* (G). Puerto Wilches, Santander, 100 m., *Killip & Smith 14912* (W, Y). Orocné, Río Meta, *Lehmann 8814* (K). Also in Bolivia, Brazil, and the Guianas.

A shrub with glabrous branches; stipules short, green, persistent, truncate, shortly biaristate; leaves subsessile, broadly ovate to elliptic or obovate, acuminate, rounded to acute at the base, glabrous; inflorescence terminal, pedunculate, cymose-capitate, the bracts large

and foliaceous; peduncles pubescent; calyx minutely 5-dentate; corolla white, glabrous outside, 10 mm. long.

This species might be placed equally well in the genus *Cephaelis*. Curran reports the vernacular name "buche de pava" for the plant.

Psychotria macrophylla R. & P. Fl. Peruv. 2: 56. *pl. 202, f. a.* 1799. *P. anomothyrsa* Schum. & Donn. Smith, Bot. Gaz. 35: 3. 1903. *P. tolimensis* Wernh. Kew Bull. 1914: 68. 1914. *Hoffmannia striata* Rusby, Descr. N. Sp. S. Amer. Pl. 134. 1920. *P. albacostata* Rusby, op. cit. 138. 1920.

Inza, Cauca, 1,500-1,700 m., *Lehmann 4932* (F, K). Sierra del Líbano, 1,650 m., *H. H. Smith 2409* (Y, type of *Hoffmannia striata*). Las Nubes, 1,350 m., *H. H. Smith 1807* (Y). Las Nubes and Manzanares, 900-1,500 m., *H. H. Smith 1806* (Y, type of *P. albacostata;* F, W, M, P). Titiribí, *Toro 563* (Y). Hills of Miraflores, above Palmira, Cauca, 1,200-1,600 m., *Pittier 887* (W, G). La Cumbre, El Valle, 1,800-2,100 m., *Pennell 5889* (G, W, Y). Córdoba, El Valle, 80-100 m., *Killip 5264* (W, G, Y). La Virginia, Tolima, 1,200-1,500 m., *Pennell 3256* (W, Y). Pinares, Caldas, 2,400-2,700 m., *Pennell 9321* (W, G), *9390* (W). Cisneros, El Valle, 300-500 m., *Killip 11465* (W, G). La Gallera, Micay Valley, Cauca, 1,400 m., *Killip 7751* (W, G, Y). Eastern paramos of Guasca, 1921, *Ariste-Joseph* (W). Río Boquilla, Caldas, 1,600-1,900 m., *Killip & Hazen 8832* (W). Salento, Caldas, 2,100-2,500 m., *Pennell 8874* (W). Tequendama, Cundinamarca, *Ariste-Joseph 1070* (W). Las Dantas to Puerto Canoa, Bolívar, 400-800 m., *Pennell 4528* (Y). Mediación, Quindío, *André 2035* (Y). Angelopolis, *Toro 926* (Y). Sonson, *Toro 1210* (Y). Without locality, *Triana 1707* (K). Quindío, *André 2035* (K). Type of *P. tolimensis* from Pitalito, Tolima, *Sprague 237*. Ranging to Bolivia and southern Mexico.

Stems simple, suffrutescent, glabrous or nearly so; stipules short, broad, apiculate, caducous; leaves petiolate, elliptic to lance-oblong, acuminate, at base acute to attenuate, glabrous or pruinose-puberulent beneath on the nerves; inflorescence axillary, pedunculate, paniculate, the branches often reflexed, glabrous or minutely puberulent, the flowers sessile, the bracts minute; calyx denticulate; corolla whitish or yellowish, glabrous, 4-5 mm. long; fruit 4-5 mm. long, glabrous, white.

In some of the specimens the fruit is described as red or orange, but if these notes are correct, it is probable that the specimens belong to a distinct species whose characters are not apparent in the material at hand. *Hoffmannia striata* was based upon a form with unusually narrow leaves.

Psychotria macropodantha, sp. nov.—Suffrutex simplex 30-60 cm. altus, caule valido tereti rimoso ochraceo glabro, internodiis 3-6.5 cm. longis; stipulae in vaginam 2 mm. longam connatae,

glabratae, persistentes, dorso costatae, costa in mucronem brevem excurrente; folia opposita, petiolo gracili 3-10 mm. longo; lamina elliptico-oblonga, 6.5-9.5 cm. longa, 2.5-3.5 cm. lata, breviter acuminata, acumine obtuso, basi acuta, marginata, supra viridis glabra minute puncticulata, nervis fere obsoletis, subtus pallida, statu juvenili sparse scaberula, mox glabrata, costa valida elevata, nervis lateralibus utroque latere c. 9, gracillimis, prominentibus, angulo lato adscendentibus, arcuatis, prope marginem conjunctis, nervulis obsoletis; inflorescentia axillaris, 1.5 cm. longe pedunculata, capitata, 1.3 cm. diam., pedunculo gracili glabro; flores sessiles vel brevissime pedicellati; bracteae oblongae, 3-5 mm. longae, virides, glabrae; calyx persistens 1.5 mm. longus profunde 5-lobus, lobis lanceolatis attenuatis; fructus subglobosus 4.5 mm. longus glaber fere laevis.—Colombia: In dense forest, Río Suratá Valley, above Suratá, Dept. Santander, Eastern Cordillera, alt. 2,000-2,300 m., January 5-6, 1927, *E. P. Killip & Albert C. Smith 16631* (U. S. Nat. Herb. No. 1,352,355, type; duplicate in Y).

The color of the corolla is stated to be "yellow-green," but no corollas are present in the specimens. *Psychotria macropodantha* is an isolated species, probably related to *P. macrophylla* R. & P., but well marked by the capitate inflorescence.

Psychotria marginata Sw. Prodr. Veg. Ind. Occ. 43. 1788. *P. divaricata* HBK. Nov. Gen. & Sp. 3: 362. 1820, non H. & B. 1819.

Río Dagua, 400 m., *Lehmann 4029* (W). Dagua, Buenaventura, 200-500 m., *Lehmann 5115* (F, K). Without locality, *Triana 1690* (K). Juntas, *Lehmann B.T.693* (G, K, Y). Type of *P. divaricata* from the Andes of Quindío, *Bonpland*. Widely distributed in tropical America.

A nearly glabrous shrub; stipules large, brown, oblong to ovate, entire, caducous; leaves short-petiolate, obovate-oblong to narrowly elliptic-obovate, minutely puberulent beneath or glabrate, abruptly acute or acuminate; inflorescence terminal, long-pedunculate, paniculate, lax, the slender pedicels 2-5 mm. long; calyx teeth short, obtuse; corolla yellowish white, 3 mm. long, glabrous outside; fruit globose, 3-4 mm. long.

Psychotria megistophylla, sp. nov.—Ramuli crassi rimosi; stipulae deciduae, ferrugineae, lanceolato-oblongae, 4-4.5 cm. longae, longe acuminatae, erectae, glabrae vel sparse puberulae; folia fere sessilia opposita, petiolo usque ad 13 mm. longo, interdum fere nullo, crasso, puberulo; lamina crasse chartacea, cuneatim oblongo-obovata, c. 40 cm. longa et 15-19 cm. lata, apice acuta vel saepissime rotundata et breviter apiculato-acuminata, interdum late emarginata et apiculata, basin versus longe sensimque cuneato-attenuata, supra fusco-viridis, glabra, nervis subimpressis, subtus in sicco ferruginea, ubique vel tantum ad nervos minute denseque puberula, costa gracili elevata, nervis lateralibus utroque latere c. 39, gracilibus,

elevatis, leviter arcuatis, angulo lato divergentibus, nervum collectivum distinctum prope marginem efformantibus, nervulis obscuris; inflorescentia terminalis c. 27 cm. longe pedunculata, cymoso-corymbosa, 10-15 cm. longa, 8-12 cm. lata, laxe multiflora, axi centrali nulla, ramis basalibus verticillatis suberectis curvis minute puberulis, floribus sparsis longe pedicellatis, pedicellis rectis 3-6 mm. longis, bracteis minutis deciduis; fructus ellipsoideus, 6-7 mm. longus, basi acutiusculus, apice obtusus vel rotundatus, obtuse costatus, glaber, pyrenis facie ventrali planis.—Colombia: Santa María, Timbiquí, *F. C. Lehmann 8631* (Herb. Kew., type).

The type material consists of five sheets, two of which show fruiting panicles, the other specimens being sterile. The plant is easily recognized among all the Colombian Psychotrias by its very large leaves of distinctive form.

Psychotria melaneoides Wernh. Journ. Bot. 55: 338. 1917.

Type from Barbacoas, *Triana 338*.

A nearly glabrous shrub; stipules oblong, persistent, biaristate, the aristae 3 mm. long; leaves petiolate, papyraceous-coriaceous, ovate-elliptic, 9-15 cm. long, 4-7 cm. wide, acuminate at the apex, subtruncate to obtuse at the base; inflorescence terminal, long-pedunculate, thyrsiform, pyramidal, lax, the bracts minute, setaceous; flowers sessile; calyx obtusely and broadly lobate; corolla tube 3 mm. long, the throat barbate, the lobes 1.5-2 mm. long, obtuse.

Psychotria micayensis, sp. nov.—Ramuli crassi obtuse tetragoni glabri, internodiis brevibus; stipulae maximae, deciduae, rotundato-ovatae, 2-2.5 cm. longae, fere 2 cm. latae, acutae, glabrae, viridescentes; folia opposita, petiolo crasso 3-3.5 cm. longo glabro; lamina elliptico-oblonga vel obovato-oblonga, c. 26 cm. longa et 9 cm. lata, acuminata, basin versus longe angustata, herbacea, supra viridis glabra, nervis prominulis, subtus pallida, ad nervos sparse puberula, costa crassa, nervis lateralibus utroque latere c. 16, gracillimis, prominulis, angulo lato adscendentibus, leviter arcuatis, juxta marginem conjunctis, nervulis obsoletis; inflorescentiae axillares 5 mm. longe pedunculatae, cymoso-paniculatae, c. 4.5 cm. longae et latae, dense multiflorae, ramis adscendentibus curvis validis fere glabris, floribus sessilibus dense confertis; bracteae ovatae vel oblongae, plerumque 3-5 mm. longae, obtusae, puberulae vel glabratae, virides; calyx 1-1.5 mm. longus villosulus 5-dentatus, dentibus oblongo-triangularibus obtusis vel acutis; fructus ovalis albus glaber 5 mm. longus profunde sulcatus.—Colombia: In forest, La Gallera, Micay Valley, Dept. El Cauca, alt. 1,400-1,500 m., June 29-30, 1922, *Ellsworth P. Killip 7760* (U. S. Nat. Herb. No. 1,140,625, type).

This is another relative of *P. macrophylla* R. & P., differing from that species in its greatly enlarged stipules and nearly sessile inflorescence.

Psychotria munda, sp. nov.—Ramuli gracillimi teretes glabri virides, internodiis 1-3 cm. longis; stipulae persistentes glabrae, in vaginam truncatam 1 mm. longam connatae, vagina in lacinias 4 subulatas erectas 0.6-1 mm. longas desinente; folia breviter petiolata opposita, petiolo gracili 3-6 mm. longo glabro; lamina firme membranacea, anguste lanceolato-oblonga, 4.5-8 cm. longa, 0.8-1.5 cm. lata, longissime et anguste acuminata, acumine acuto, basin versus sensim angustata, glabra, supra luteo-viridis, nervis non elevatis, subtus pallidior, sublucida, costa gracili elevata, nervis lateralibus utroque latere c. 15, gracilibus, prominulis, arcuatis, angulo lato adscendentibus, juxta marginem conjunctis, nervulis prominulis laxe reticulatis; inflorescentia terminalis 8-12 mm. longe pedunculata, cymoso-paniculata, laxe pauciflora, 1.5-2 cm. longa et aequilata, pedunculo gracili erecto minutissime puberulo, ramis paucis brevibus, basalibus oppositis minutissime puberulis, floribus sparsis sessilibus vel 1-2 mm. longe pedicellatis, bracteis persistentibus inconspicuis usque ad 1 mm. longis; hypanthium glabrum obovoideum 0.8 mm. longum; calyx glaber 0.5 mm. longus 4-dentatus, dentibus triangularibus acutis; corolla extus glabra vel minutissime puberula, in alabastro 2.5 mm. longa, tubo gracili tereti, fauce non barbata, lobis 4 oblongis acutiusculis tubo duplo brevioribus; antherae inclusae lineari-oblongae.—Colombia: Santa Marta, "Hort. Saunders," *No. 4259* (Herb. Kew., type).

Psychotria ochroleuca, sp. nov.—Frutex humilis, ramulis gracillimis subteretibus dense puberulis, vetustioribus ochraceis, internodiis elongatis; stipulae in vaginam 3-3.5 mm. longam persistentem truncatam puberulam connatae, vagina in lobos 4 remotos lineari-attenuatos 3 mm. longos ciliatos desinente; folia opposita, petiolo gracili 7-12 mm. longo puberulo vel pilosulo; lamina anguste elliptico-oblonga, 6.5-10 cm. longa, 2-3.5 cm. lata, subabrupte et longiuscule acuminata, acumine angusto acuto, basi acuta vel longe angustata, crasse papyracea, marginata, supra viridis, ad nervos vel tantum ad costam pilosula, subtus pallidior, ad nervos pilosula, ad costam longius pilosa, costa gracili elevata, nervis lateralibus utroque latere c. 14, angulo acuto vel lato adscendentibus, gracilibus, prominentibus, leviter arcuatis, marginem attingentibus; inflorescentia terminalis, sessilis, cymoso-paniculata, 3-7 cm. longa et lata, e basi trichotoma, dense multiflora, ramis primariis suberectis, ceteris divaricatis, dense puberulis; bracteae lineari-attenuatae 3-9 mm. longae puberulae saepius virides; flores vulgo 1-2 mm. longe pedicellati vel subsessiles; hypanthium late turbinatum dense puberulum 1 mm. longum; calyx 5-partitus 1-1.5 mm. longus puberulus, lobis triangulari-ovatis acutis inaequalibus viridibus; corolla ochroleuca tubuloso-infundibuliformis 4.5 mm. longa, extus dense minuteque puberula, tubo superne paullo sensimque dilatato, lobis latis obtusis apice breviter cucullatis; fructus immaturus 4 mm. longus ellipsoideus sparse puberulus costatus.—Colombia: Near Río Flautas, Río Paez Valley, Cauca, alt. 2,700 m., January 26, 1906, *H. Pittier 1221* (U. S. Nat. Herb. No. 531,415, type).

This species is characterized by the copious pubescence, many-flowered inflorescence with divaricate branching, and deeply lobed calyx with well-developed green lobes.

Psychotria oleifolia (HBK.), comb. nov. *Coffea oleifolia* HBK. Nov. Gen. & Sp. 3: 372. 1820.

Type from Bogotá, *Mutis*.

Branches glabrous; stipules connate, truncate; leaves petiolate, oblong, subacuminate, cuneately narrowed at the base, reticulate-veined, coriaceous, glabrous, shining above, yellowish beneath, 3.5 cm. long and 2 cm. wide; corymbs terminal, pedunculate, trichotomous, glabrous; bracts minute; flowers solitary, sessile; calyx irregularly incised; corolla glabrous, the 4 lobes oblong, acutish, the throat villous.

Psychotria paramorum, sp. nov.—Frutex omnino glaber, ramulis crassis teretibus lucidis fusco-brunneis, vetustioribus rimosis; stipulae in vaginam intrapetiolarem 4-5 mm. longam connatae, parte superiore membranacea et saepe decidua; folia opposita, petiolo crasso 3-4 mm. longo supra late sulcato; lamina crasse coriacea, ovata, elliptico-ovata vel ovato-oblonga, 3.5-6 cm. longa, 1.5-2.5 cm. lata, acuminata, basi obtusa, subacuta vel fere rotundata, marginata, sublucida, fere concolor, in sicco fusca, costa nervisque supra manifestis, costa subtus elevata gracili, nervis lateralibus utroque latere c. 8, gracilibus, prominentibus, angulo acuto adscendentibus, arcuatis, marginem attingentibus, nervulis paucis, interdum prominulis; inflorescentia terminalis vel pseudo-axillaris, 1-3 cm. longe pedunculata, late paniculata, laxe multiflora, 2-3 cm. longa, 3.5-5.5 cm. lata, basi trichotoma, ramulis divaricatis validis; cymulae saepe umbelliformes pauciflorae pedunculatae, pedicellis crassis 1-2 mm. longis; bracteae plerumque triangulares et c. 1 mm. longae, infimis interdum subulatis et 4 mm. longis; hypanthium semiglobosum 1-1.5 mm. longum glabrum; calyx 0.5 mm. longus 5-dentatus, dentibus triangularibus acutis; corolla alba, hypocrateriformis, 5 mm. longa, extus glabra, lobis late oblongis obtusis tubo paullo brevioribus; fructus subglobosus ruber 5 mm. longus obscure costatus, costis rotundatis.—Colombia: In shrub zone below Páramo de Chaquiro, Cordillera Occidental, Dept. Bolívar, alt. 2,800-3,100 m., February 24, 1918, *Francis W. Pennell 4342* (Herb. N. Y. Bot. Gard., type). Cascada Chorrón, south of Antizales, Bolívar, *Pennell 4388* (Y).

Evidently a close ally of *P. pendula* (Jacq.) Urban, of the West Indies, but differing in the conspicuously nerved leaves; distinct from *P. crassa* Benth. in the small calyx lobes and inconspicuous bracts.

Psychotria patens Sw. Prodr. Veg. Ind. Occ. 45. 1788. *P. flexuosa* Willd. Sp. Pl. 1: 966. 1798. *Uragoga patens* Kuntze, Rev.

Gen. 2: 962. 1891. *Palicourea patens* Urban, Repert. Sp. Nov. 18: 197. 1922.

San Andrés de la Sierra, Magdalena, 1,100-1,300 m., *Pittier 1677* (W). Widely distributed in tropical America.

A slender glabrous shrub, usually about 1 m. high; stipules persistent, short, green, biaristate; leaves short-petiolate, lanceolate or lance-oblong, long-acuminate, obtuse to acute at the base, stiff; inflorescence terminal, pedunculate, paniculate, the very slender branches reflexed; calyx lobes triangular; corolla glabrous outside, 7 mm. long; fruit white or pale blue.

Psychotria pinularis Sessé & Moc. Fl. Mex. ed. 2. 57. 1894.

Santa Marta, 75 m., *H. H. Smith 1804* (F, W, G, M, P, Y). Río Frío, between Ciénaga de Santa Marta and the foothills, *Pittier 1596* (W, G). Barranquilla, *Bro. Paul C36* (W). Río Frío, Santa Marta, *Walker 1268* (W). Torrecilla, near Turbaco, 150-300 m., *Killip & Smith 14245* (W, Y), *14262* (W, Y), *14673* (W, Y). La Paila, Cauca, *Holton 428* (P, Y). Santa Marta, *Schlim 931* (K); *Goudot* (K). Magdalena, *Goudot* (K). Also in Ecuador, the Guianas, Central America, Mexico, and the West Indies.

A nearly glabrous shrub, usually 1-2 m. high; stipules short, connate, acute, green persistent; leaves slender-petiolate, thin, acute or acuminate, acute or attenuate at the base; inflorescence pedunculate, terminal, cymose-corymbose, the branches often puberulent; calyx truncate; corolla white, up to 1 cm. long, glabrous outside.

Some of the Colombian material has been distributed as *P. horizontalis* Sw.

Psychotria pisonioides, sp. nov.—Frutex, ramulis validis subteretibus, novellis tenuiter ferrugineo-tomentosis, vetustioribus griseis rugulosis, internodiis brevibus; stipulae caducae, oblongae, 11-15 mm. longae, tenues, brunnescentes, glabrae; folia opposita, petiolo 3-5 mm. longo supra sulcato puberulo vel glabrato; lamina elliptico-oblonga vel oblonga, 3-6.5 cm. longa, 1.5-3.5 cm. lata, longe caudato-acuminata, acumine obtuso, basi acuta, papyracea, supra fusca, glabra, nervis non elevatis, subtus fusco-brunnescens, primo ad nervos sparse puberula, cito glabrata, costa gracili elevata, nervis lateralibus utroque latere c. 8, angulo acuto adscendentibus, arcuatis, prominentibus, prope marginem conjunctis, nervulis obsoletis; inflorescentia terminalis, cymoso-corymbosa, 2.5-3.5 cm. longe pedunculata, dense multiflora, 1.5-2 cm. longa et lata, basi trichotoma, ramis ferrugineo-tomentulosis, floribus aggregatis sessilibus; bracteae lineares vel subulatae, 3-5 mm. longae; calyx 3-3.5 mm. longus, tubuloso-campanulatus, glaber, ad medium vel profundius 5-lobus, laciniis lanceolatis longiattenuatis erectis; corolla alba infundibuliformis extus glabra, tubo 7 mm. longo, superne paullo ampliato, ore 2.5 mm. lato, lobis triangularibus obtusis 2 mm. longis.—Colombia: In forest, Pinares, above Salento, Dept. Caldas, alt. 2,600-2,900 m., August 2-10, 1922, *Francis W. Pennell*

9204 (U. S. Nat. Herb. No. 1,140,679, type). Quindío, La Trocha, *Goudot* (K).

This *Psychotria* may be recognized by its small caudate-acuminate leaves, and by the large, deeply lobed calyx.

Psychotria Pittieri Standl. Contr. U. S. Nat. Herb. 18: 132. 1916.

Cupica, *Seemann 1021* (K). Also in Central America.

A slender, densely branched shrub; stipules 4-6 mm. long, persistent, green, the lobes linear-subulate; leaves short-petiolate, elliptic, 4-5.5 cm. long, abruptly acuminate, obtuse or acute at the base, hirsutulous above along the costa, appressed-pilosulous beneath; inflorescence terminal, sessile, few-flowered; calyx lobes rounded-ovate, obtuse; corolla white, 4-5 mm. long, appressed-pubescent; fruit blue.

Psychotria podocephala (Muell. Arg.), comb. nov. *Mapouria podocephala* Muell. Arg. Flora 59: 460, 466. 1876.

Type from the region of San Carlos on the Río Negro, *Spruce 3076, 3682.*

Glabrous; stipules oblong-ovate, acute, connate, 5-6 mm. long; leaves petiolate, spatulate-obovate, 18-23 cm. long, cuspidate; flowers capitate, arranged in a terminal short-pedunculate head 14-16 mm. in diameter; calyx lobes 4-5, broadly ovate, obtuse; corolla 7 mm. long, barbate in the throat; fruit 13 mm. long.

Psychotria psychotriaefolia (Seem.) Standl. Contr. U. S. Nat. Herb. 18: 133. 1916. *Cephaelis psychotriaefolia* Seem. Bot. Voy. Herald 138. 1852-57.

Without locality, *Lehmann 9043* (K, Y). Poponte, *Allen 886* (K). Also in Panama.

A shrub, the young branches ferruginous-tomentose; stipules thin, brown, 1.5-2 cm. long, attenuate, caducous; leaves short-petiolate, obovate to oblong-oblanceolate, acute or short-acuminate, attenuate to the base, puberulent beneath, at least on the nerves; inflorescences axillary and terminal, sessile, dense, the branches 2 cm. long or less, each with several glomerules of sessile flowers, ferruginous-tomentose; calyx dentate; corolla 3 mm. long; fruit red, 4-5 mm. long, glabrous.

Psychotria rhodoleuca Muell. Arg. Flora 59: 541, 545. 1876; in Mart. Fl. Bras. 65: 314. *pl. 49, f. 1. 1881.*

Type from San Carlos on the Río Negro, *Spruce 3674.*

A glabrous shrub; stipules short-sheathing, bisetose on each side; leaves nearly sessile, elliptic-lanceolate, 10-15 cm. long, cuspidate-acuminate; inflorescence terminal, short-pedunculate, paniculate, compact, the bracts foliaceous, linear-spatulate, ciliolate; calyx 5-denticulate; corolla red; flowers 13-16 mm. long; fruits 3 mm. long.

Psychotria rondeletioides, sp. nov.—Ramuli rigidi graciles teretes virides glabri, internodiis 5-6.5 cm. longis; stipulae (perfectae non visae) persistentes, 5-6 mm. longae, basi incrassatae, ut videtur apice mucronatae, glabrae; folia breviter petiolata opposita, petiolo crasso 5 mm. longo glabro; lamina coriacea, late elliptica vel ovali-elliptica, 7-10.5 cm. longa, 4-6 cm. lata, apice abrupte acuta, acumine acuto, basi obtusa, late rotundata vel subtruncata, utrinque glabra, luteo-viridis, concolor, nervis supra conspicuis sed vix elevatis, costa subtus elevata gracili, nervis lateralibus utroque latere 7-9, gracilibus, elevatis, subarcuatis, angulo lato divergentibus, prope marginem conjunctis, nervulis prominentibus et arcte reticulatis; inflorescentia terminalis 5 cm. longe pedunculata cymoso-paniculata, 5 cm. longa et aequilata, pedunculo gracili erecto fere glabro, ramis verticillatis gracilibus adscendentibus minutissime puberulis, floribus ad apices ramulorum plerumque ternis sessilibus vel 1-2 mm. longe pedicellatis, bracteis minutissimis vel obsoletis; hypanthium turbinatum 1-1.5 mm. longum minute puberulum; calyx 0.5 mm. longus minute 4-denticulatus, dentibus acutis; corolla extus minutissime puberula, tubo crasso 3.5 mm. longo superne paullo ampliato, lobis 4 ovalibus obtusis 2 mm. longis.—Colombia: Without definite locality, *Funck & Schlim* (Herb. Kew., type).

The material available is very scant, and there is some doubt regarding the proper generic disposition of the plant. If really a *Psychotria,* as seems probable, it is a well-marked species, easily recognized by its broad, yellow-green, nearly sessile leaves.

Psychotria rufescens H. & B. ex R. & S. Syst. Veg. 5: 192. 1819. *P. micrantha* HBK. Nov. Gen. & Sp. 3: 363. *pl. 284.* 1820. *Mapouria micrantha* Wernh. Kew Bull. 1914: 69. 1914.

Type from Río Magdalena, *Humboldt and Bonpland.* La Manuelita, Palmira, El Valle, 1,100 m., *Pennell & Killip 6161* (W). Río Agua Bonita to Río Vieja, east of Zarzal, El Valle, 1,100-1,300 m., *Pennell, Killip & Hazen 8580* (W, G, Y). Cuchilla, east of Zarzal, El Valle, 1,200-1,600 m., *Pennell, Killip & Hazen 8524* (W). Without locality, *Lehmann 668* (W). Between Nariño and El Tambor, Santander, 150-300 m., *Killip & Smith 14961* (W). Santa Marta, 600 m., *H. H. Smith 317* (F, W, G, P). Río Orejas, Cauca, 1,000-1,400 m., *Lehmann 7933* (F, W). Without locality, *André 2925* (K). Also in Ecuador and Central America.

A shrub or small tree, the branches rufous-hirsute; stipules large, caducous, brown, bidentate at the apex; leaves petiolate, oblong, oblong-elliptic, or lance-oblong, acuminate at the apex, acute or attenuate at the base, softly pubescent, especially beneath; inflorescence terminal, pedunculate, pubescent, open-paniculate, radiately branched; calyx lobes short, broad, obtuse; corolla white or greenish yellow, pubescent, 3 mm. long; fruit pubescent, 4 mm. long.

Psychotria rufiramea, sp. nov.—Arbor parva, ramulis crassis subteretibus ferrugineo-puberulis vel glabratis, internodiis elongatis;

stipulae caducae, late ovatae, 1 cm. longae, breviter connatae, obtusae vel subtruncatae, rarius acutae, ferrugineo-puberulae; folia opposita, petiolo valido 0.5-1.5 cm. longo puberulo; lamina subcoriacea, obovata vel obovato-oblonga, 11-29 cm. longa, 5-12 cm. lata, apice obtusa vel rotundata et abrupte breviterque acuminata, acumine triangulari obtuso, basin versus sensim vel abrupte longeque angustata, decurrens, supra fusco-viridis, glabra, nervis non elevatis, subtus paullo pallidior, brunnescens, vulgo ubique sed praesertim ad nervos minute ferrugineo-puberula, costa valida elevata, nervis lateralibus utroque latere c. 16, gracilibus, angulo acuto vel lato adscendentibus, prominentibus, arcuatis, prope marginem conjunctis, nervulis irregularibus prominulis laxe reticulatis; inflorescentia terminalis vel pseudo-axillaris, 5-10 cm. longe pedunculata, late cymoso-paniculata, 3-10 cm. longa, 5-18 cm. lata, basi interdum foliis parvis bracteata, pedunculo crasso, ramis primariis validis, inferioribus verticillatis, superioribus oppositis divaricatis vel etiam subreflexis, dense ferrugineo-puberulis, floribus sessilibus ad apices ramulorum dense capitato-congestis; bracteae ovatae vel lanceolatae, 2-8 mm. longae, ferrugineo-tomentellae, persistentes; hypanthium 1 mm. longum tomentellum; calyx 1 mm. longus 5-dentatus, ferrugineo-tomentellus vel glabratus, dentibus latis obtusis brevibus; corolla alba, tubuloso-infundibuliformis, 4-6 mm. longa, extus glabra, tubo crasso superne paullo dilatato, lobis obtusis tubo triplo brevioribus; fructus subglobosus 5-6 mm. longus glabratus leviter costatus.—Colombia: In forest above La Cumbre, Cordillera Occidental, Dept. El Valle, 1,800-2,200 m., May 14-19, 1922, *Ellsworth P. Killip 5582* (U. S. Nat. Herb. No. 1,140,571, type; duplicates in G and Y); alt. 1,550-1,700 m., *Pennell 5026* (W, G, Y). Forest above Salento, Caldas, 2,000-2,500 m., *Pennell 8919* (W). Las Vegas, Santander, in dense woods along stream, 2,600-3,000 m., *Killip & Smith 16056* (W, Y).

The outstanding characters of this species are the large leaves and abundant rusty pubescence.

Psychotria rugulosa HBK. Nov. Gen. & Sp. 3: 356. 1820.

East slopes of central Andes of Popayán, 1,800-2,200 m., *Lehmann 7932* (F, K). Dolores, Tolima, 1,000-1,500 m., *Lehmann 6360* (F, K, W). Anganche and La Teta, highlands of Popayán, 1,000-1,400 m., *Lehmann 5168* (F, K). Also in Ecuador, and in Peru(?).

A shrub, the branches glabrous; stipules oblong, acuminate, thin, brown, caducous; leaves petiolate, lanceolate or oblong-lanceolate, very long-acuminate, long-attenuate to the base, finely puberulent beneath along the nerves, the nerves impressed above; inflorescence terminal, pedunculate, cymose-paniculate, rather dense, many-flowered, the branches glabrous or nearly so; bracts linear, deciduous; flowers sessile; calyx dentate, ciliolate; corolla glabrous outside, 5 mm. long, the lobes acutish, equaling the tube; fruit globose, glabrous, red, 4 mm. long.

The original locality of the species is given doubtfully as Peru, but no Peruvian specimens have been seen by the writer.

Psychotria salentana, sp. nov.—Arbor parva, ramulis crassis subteretibus glabris in sicco fuscis, internodiis 2.5-4 cm. longis; stipulae caducae oblongo-ovatae, acutae, fere liberae, 2.5 cm. longae, tenues, ferrugineae, glabrae; folia opposita, petiolo crasso 1.5-3 cm. longo supra sulcato glabro; lamina obovata vel oblongo-obovata, 19-30 cm. longa, 7.5-13 cm. lata, crasse papyracea, apice obtusa vel fere rotundata et breviter cuspidato-acuminata, acumine anguste triangulari 1-1.5 cm. longo attenuato, basin versus longe angustata, glabra, supra obscure viridis, nervis non elevatis, subtus paullo pallidior, brunnescens, costa gracili elevata, nervis lateralibus utroque latere c. 17, angulo acuto adscendentibus, gracilibus, prominentibus, fere rectis, prope marginem conjunctis; inflorescentia terminalis, 4-7.5 cm. longe pedunculata, late cymoso-paniculata, 7-12 cm. longa, 8-13 cm. lata, multiflora, remote ramosa, ramis primariis verticillatis adscendentibus vel divaricatis interdum subreflexis validis glabris, cymulis capituliformibus dense pauci-floris, floribus sessilibus; bracteae deciduae, ovatae vel lanceolatae, acutae, remote ciliolatae; hypanthium late turbinatum 1 mm. longum glabrum; calyx 1-1.5 mm. longus glaber truncatus vel remote undulato-dentatus; corolla alba, hypocrateriformis, 4.5 mm. longa, extus glabra, tubo crasso fauce dense albo-barbato, lobis late oblongis obtusis apice minute cucullatis tubo longioribus; fructus subglobosus 4.5-5 cm. longus glaber obtuse leviterque costatus.—Colombia: In forest, Río Boquilla, west of Salento, Cordillera Occidental, Dept. Caldas, alt. 1,600-1,900 m., July 27, 1922, *Ellsworth P. Killip and Tracy E. Hazen 8793* (U. S. Nat. Herb. No. 1,140,657, type; duplicate in G). Río Santa Rita, Salento, in dense forest, 1,600-1,800 m., *Killip & Hazen 9014* (W).

The species is related to *P. grandis* Sw., but has very different stipules.

Psychotria salicifolia HBK. Nov. Gen. & Sp. 3: 356. 1820.

Type locality given doubtfully as "New Granada" (Colombia). Western Andes of Popayán, 1,500-1,800 m., *Lehmann 5907* (F). Highlands of Popayán, 1,600-1,900 m., *Lehmann B.T.393* (F).

A shrub 2 m. high, glabrous or nearly so; stipules oblong, acute, brown, caducous; leaves petiolate, lanceolate or oblong-lanceolate, mostly 5-8 cm. long, long-acuminate, long-attenuate to the base, glabrous; inflorescence terminal, pedunculate, cymose-paniculate, small, open, radiately branched at base, the bracts caducous; flowers short-pedicellate; calyx shallowly dentate; corolla 4 mm. long, glabrous outside, the lobes longer than the tube, the throat naked; fruit globose, glabrous.

Psychotria sanmartensis Rusby, Descr. N. Sp. S. Amer. Pl. 139. 1920. *P. indulgens* Rusby, l. c.

Las Partidas, 1,050 m., *H. H. Smith 1829* (Y, type; F, M, W, P). Valparaíso, 1,350 m., *H. H. Smith 1828* (Y, type of *P. indulgens;* F, W, M, P, S). Las Vegas, Santander, in woods, 2,600-3,000 m., *Killip & Smith 15967* (W, Y), *15984* (W, Y).

A glabrous tree 7-10 m. high; stipules short, sheathing, the margin deciduous; leaves short-petiolate, coriaceous, elliptic-ovate to elliptic-oblong, acuminate at the apex, acute or acuminate at the base, shining; inflorescence terminal, pedunculate, dense, many-flowered, cymose-corymbose, repeatedly dichotomous, as broad as long; central flower of each 3-flowered cymule sessile, the lateral ones pedicellate; calyx obscurely dentate; corolla white, glabrous, 6-7 mm. long, the lobes shorter than the tube; fruit 5-6 mm. long, subglobose, white.

The types of *P. sanmartensis* and *P. indulgens* are so very much alike that it is difficult to guess why they should have been considered to represent distinct species.

Psychotria santae-rosae, sp. nov.—Frutex 3.5 m. altus, ramulis gracilibus pilis fulvis patentibus dense setoso-hirsutis; stipulae lanceolato-oblongae, persistentes, 1.5-2 cm. longae, breviter connatae, hispidae, ad medium bifidae, lobis angustis longiattenuatis, late pallideque marginatae, ciliatae; folia opposita, petiolo gracili 1-4.5 cm. longo hirsuto; lamina papyracea elliptica vel elliptico-oblonga, 14.5-26 cm. longa, 6.5-11.5 cm. lata, caudato-acuminata, acumine angusto attenuato, basi acuta vel subobtusa, utrinque pilis longis setoso-hirsuta, supra viridis, nervis prominulis, subtus fusca, costa gracili elevata, nervis lateralibus utroque latere 16-20, gracilibus, prominentibus, angulo lato vel angusto adscendentibus, gracilibus, arcuatis, prope marginem conjunctis, nervulis transversis prominulis subparallelis; inflorescentia terminalis vel pseudo-axillaris, 6-14 cm. longe pedunculata, paniculata vel thyrsoidea, 4-9.5 cm. longa, 2-5 cm. lata, densissime multiflora, pedunculo gracili dense hispido, ramis primariis c. 1.5 cm. longis verticillatis crassis rectis divaricatis hispidis, floribus ad apices ramorum primariorum dense capitato-congestis; bracteae ovato-oblongae vel lanceolatae, 3-10 mm. longae, obtusae vel acutae, hispidulae; calyx 2 mm. longus 5-lobus, lobis lineari-lanceolatis attenuatis hispidulis; fructus subglobosus 2.5-3 mm. longus breviter hispidus vel glabratus, leviter costatus, calyce persistente coronatus.—Colombia: In forest, Santa Rosa, Dagua Valley, Dept. El Valle, alt. 200-300 m., September 22, 1922, *Ellsworth P. Killip 11530* (U. S. Nat. Herb. No. 1,140,714, type).

Related to *P. daguensis* Standl., but differing in the very large leaves, copious long pubescence, and ample inflorescence.

Psychotria Schlimii, sp. nov.—Frutex, ramulis gracilibus teretibus glabris, internodiis 1-3 cm. longis; stipulae persistentes in vaginam truncatam glabram 1 mm. longam connatae, vagina in

lacinias 4 subulatas 1-2 mm. longas erectas glabras remotas desinente; folia petiolata opposita, petiolo gracili 5-9 mm. longo glabro; lamina rigide membranacea, anguste lanceolato-oblonga, 4-8.5 cm. longa, 1-2 cm. lata, longissime et angustissime acuminata, acumine apice anguste attenuato, basin versus longe sensimque angustata, supra luteo-viridis, ad costam prominentem sparse pilosula, aliter glabra, nervis vix prominulis, subtus paullo pallidior, ad nervos minute pilosula, aliter glabra, costa gracili elevata, nervis lateralibus utroque latere c. 11, gracillimis, prominulis, arcuatis, angulo lato adscendentibus, in marginem desinentibus, nervulis obscuris; inflorescentia terminalis vel pseudo-axillaris, sessilis, cymoso-paniculata, interdum racemose ramosa, e basi pauciramosa, folia vix aequans, ramis gracilibus rectis rigidis glabris, floribus ad apices ramorum capitato-congestis sessilibus, bracteis lineari-subulatis plerumque 2-3 mm. longis; hypanthium 1 mm. longum glabrum; calyx glaber 1-1.2 mm. longus breviter dentatus, dentibus ovatis acutis; corolla alba, tubo gracili cylindrico 10 mm. longo extus glabro fauce non barbato, lobis 5 oblongis patentibus obtusis 3 mm. longis intus minutissime papillosis; antherae exsertae oblongae 1.5 mm. longae.—Colombia: Province of Ocaña, alt. 1,800 m., May, 1846-52, *L. Schlim 695* (Herb. Kew., type).

An isolated species of uncertain affinities, perhaps not properly referable to *Psychotria.*

Psychotria sinuensis, sp. nov.—Frutex, ramulis subteretibus gracilibus fusco-ferrugineis sparse ferrugineo-villusulis, internodiis elongatis; stipulae caducae, subliberae, ovato-lanceolatae, 2 cm. longae, acuminato-attenuatae, tenues, ferrugineae, glabratae; folia opposita, petiolo crasso c. 1 cm. longo puberulo; lamina elliptica, crasse papyracea, marginata, 16-23 cm. longa, 8-11.5 cm. lata, acuta vel obtusa et brevissime protracta, basi acuta vel abrupte contracta et longe decurrens, supra glabra, nervis non elevatis, subtus statu juvenili saltem ad nervos minute ferrugineo-puberula, mox glabrata, costa crassa elevata, nervis lateralibus utroque latere c. 17, angulo lato adscendentibus, gracilibus, prominentibus, arcuatis, prope marginem in nervum collectivum conjunctis, nervulis obscuris; inflorescentia pseudo-axillaris, sessilis, e basi ramosa, ramis primariis 5-10 mm. longis crassis puberulis apice umbellato-ramosis, floribus capitatis sessilibus, capitulis densissime multifloris breviter pedicellatis 6-8 mm. latis; bracteae latae, capitula involucrantes, c. 4 mm. longae, acutae vel acuminatae, acute irregulariterque lobatae, ferrugineae, glabratae, bracteis interioribus angustis; hypanthium turbinatum 1 mm. longum glabrum; calyx 1.2 mm. latus.—Colombia: In forest, Boca Verde on Río Sinu, Dept. Bolívar, alt. 100-400 m., March 4, 1918, *Francis W. Pennell 4572* (Herb. N. Y. Bot. Gard., type).

The type material is only in bud. The species is marked by the peculiar inflorescence.

Psychotria spiciflora, nom. nov. *P. spicata* Muell. Arg. Flora 59: 550. 1876, non Benth. 1841.

Collected near San Carlos on the Río Negro, *Spruce 3089.* Also in Brazil.

Glabrous; stipules bifid, 2 mm. long, the lobes ovate, subacute; leaves petiolate, lance-obovate, 10-20 cm. long, cuspidate, cuneate at the base; inflorescence terminal, nearly sessile, spicate, dense, 2 cm. long; calyx obsoletely 5-denticulate; corolla red, 1.5-1.7 mm. long, the lobes equaling the tube.

Psychotria Spruceana (Muell. Arg.), comb. nov. *Mapouria Spruceana* Muell. Arg. Flora 59: 496. 1876.

Type collected on the Río Negro above the mouth of the Río Casiquiari, *Spruce 3343.*

Branchlets glabrous; stipules connate into a short truncate sheath; leaves short-petiolate, lance-elliptic, 8-12 cm. long, cuspidate, acute at the base, coriaceous; inflorescence terminal, pedunculate, corymbiform, 2 cm. long and 3-3.5 cm. wide, the flowers sessile or the ultimate ones pedicellate; calyx truncate and obtusely 5-dentate; corolla 5-7 mm. long, pulverulent-tomentulose, the lobes half as long as the tube; fruit ellipsoid, 6 mm. long.

Psychotria tatamana, sp. nov.—Frutex ut videtur dense ramosus, ramulis validis teretibus ferrugineis, novellis dense ferrugineo-villosulis, internodiis brevibus; stipulae 5-6 mm. longae, fere liberae, caducae, ovato-triangulares, subulato-acuminatae, tenues, ferrugineae, puberulae vel glabratae; folia opposita, petiolo 3-5 mm. longo valido ferrugineo-puberulo; lamina elliptico-oblonga vel elliptico-lanceolata, 2-3.5 cm. longa, 0.7-1.4 cm. wide, subcoriacea, acuminata, acumine obtuso, basi acuta, marginata, supra fusco-viridis glabra, rhaphidibus minutis conspersa, nervis obsoletis, subtus pallidior, brunnescens, ad nervos villosula vel scaberula, costa valida prominente, nervis lateralibus utroque latere c. 6, angulo lato adscendentibus, gracilibus, prominulis, arcuatis, prope marginem conjunctis, nervulis obsoletis; inflorescentia terminalis vel pseudo-axillaris, sessilis vel 1.3 cm. longe pedunculata, cymosa, pauciflora, 1.5-2 cm. longa, interdum fere capitata, ramulis dense ferrugineo-puberulis, floribus sessilibus vel breviter pedicellatis dense confertis; hypanthium turbinatum 1.2 mm. longum glabratum; calyx 1.5-2 mm. longus extus minutissime puberulus, lobis late oblongis obtusis; corolla alba, infundibuliformis, extus glabra, 13 mm. longa, tubo superne sensim dilatato fauce fere 5 mm. lato, lobis 3.5-4 mm. longis triangulari-oblongis acutiusculis, apice brevissime cucullatis, intus glabris; fructus ruber subglobosus 6 mm. longus glaber leviter obtuseque costatus, calyce persistente coronatus.—Colombia: Mossy forest, Cerro Tatama, Dept. Caldas, Cordillera Occidental, alt. 3,200-3,400 m., September 8-10, 1922, *Francis W. Pennell 10511* (U. S. Nat. Herb. No. 1,140,698, type), *10510* (W, Y).

A plant of distinctive appearance because of the very numerous small leaves, small inflorescence, nearly concealed among the leaves, and large corolla.

Psychotria undata Jacq. Pl. Hort. Schoenbr. 3: 5. *pl. 260.* 1798. *P. rufescens* HBK. Nov. Gen. & Sp. 3: 364. 1820. *P. hirta* HBK., l. c., non H. & B. 1819. *P. rufescens α ferruginea* DC. Prodr. 4: 512. 1830. *P. rufescens β hirta* DC., l. c.

Santa Marta, 150 m., *H. H. Smith 318* (F, W, G, M, P); seashore, *H. H. Smith 1800* (F, W, G, M, P), *1801* (F, W, G, M, P); *H. H. Smith 849* (Y). La Manuelita, Cauca, 1,100-1,300 m., *Pittier 793* (W, G). Panche, *André 1638* (F, K, Y). Type of *P. hirta* from the Andes of Quindío, *Humboldt and Bonpland.* Also in Venezuela, Central America, the West Indies, and Mexico.

A shrub, the branches rufous-hirsute; stipules large, thin, brown, obtuse, caducous; leaves short-petiolate, oblong-elliptic to oblong-obovate, acuminate at the apex, acute to attenuate at the base, rufous-pilose, especially beneath, thin; inflorescence terminal and axillary, sessile, short, rufous-pilose, the flowers in small dense glomerules; calyx truncate; corolla white, pubescent, 3-4 mm. long; fruit 5 mm. long, pubescent.

Psychotria viridis R. & P. Fl. Peruv. 2: 61. *pl. 210, f. b.* 1799. *P. glomerata* HBK. Nov. Gen. & Sp. 3: 362. 1820. *P. microdesmia* Oerst. Vid. Medd. Kjob. 1852: 36. 1852.

Guayabal, Zarzal, El Valle, 900 m., *Killip 8362* (W, G). Ranging southward to Bolivia and north to Central America and Cuba.

A glabrous shrub or small tree; stipules large, acuminate, thin, brown, caducous; leaves short-petiolate, obovate or obovate-oblong, acute or short-acuminate at the apex, cuneately attenuate to the base; inflorescence terminal, pedunculate, spicate-paniculate, the lower branches verticillate, the minute flowers sessile in distant glomerules; corolla greenish white; fruit red.

66. PALICOUREA Aubl.

Palicourea is an American genus which reaches its greatest development in the South American Andes. It extends northward to central Mexico, and ranges through the West Indies, but with only a small number of representatives. In Central America the species are very few until Costa Rica is reached. In that country, whose flora shows such striking affinities with that of Ecuador, the number of Palicoureas is a substantial one, and the shrubs form a conspicuous part of the undergrowth in the cold wet mountain forests. *Psychotria* is represented in Mexico by a respectable number of species, and in the West Indies by a very large number.

Most of the members of both genera are quite without economic importance. Although the Psychotrias, except sometimes in fruit, are inconspicuous, with chiefly whitish or greenish flowers, the Palicoureas often are strikingly beautiful, with blossoms in varying shades of yellow, orange, red, blue and purple.

The stipules in *Palicourea* are always, probably, persistent, green, and united into a sheath which terminates in four broad or narrow lobes. The leaves are much more uniform than in *Psychotria*. The inflorescence is terminal and generally thyrsiform, although not invariably so. The corolla is usually longer and narrower than in *Psychotria*, and nearly always has an evident "bulge" at the base.

When dry, the inflorescence almost always has a yellowish or reddish tinge, which is rare in *Psychotria*. The corollas often change color in drying, especially if they are blue or purple.

About 70 species of *Palicourea* are known at present from Colombia. Probably no other country can produce so large a number, unless it be Ecuador. The Ecuadorian flora is still so little known that one can not make estimates regarding its composition with any high degree of safety.

Palicourea abbreviata Rusby, Descr. N. Sp. S. Amer. Pl. 141. 1920.

Top of San Lorenzo Ridge, 2,250 m., *H. H. Smith 1815* (Y, type). Without locality, *Triana 1653* (K), *1647* (K), *1656* (K).

A gnarled shrub 3 m. high, the branches glabrous; stipule sheath loose, 6-8 mm. long, the lobes distant, linear, slightly shorter; leaves short-petiolate, elliptic or oblong-elliptic, 4-7 cm. long, 2-4 cm. wide, acuminate at the apex, obtuse or rounded at the base, coriaceous, densely short-pilose beneath along the nerves; panicles sessile or nearly so, pyramidal, 5 cm. long, very dense, many-flowered, the branches ascending, nearly glabrous, the bracts small, ovate or lanceolate; flowers sessile or short-pedicellate; calyx lobes short, rounded; corolla glabrous, 9 mm. long, stout.

Palicourea acetosoides Wernh. Journ. Bot. 55: 280. 1917.

Type from Colombia, *Triana 126*.

A nearly glabrous shrub; stipules closely sheathing, the tube 5 mm. long, the distant lobes 2 mm. long; leaves petiolate, papyraceous, elliptic-obovate, scarcely acuminate, cuneately narrowed to the base, minutely pilose beneath on the costa; inflorescence 30 cm. long, the basal branches 6 cm. long, the upper branches 1-2 cm. long, glabrous, the bracts small; calyx lobes oblong, obtuse; corolla 4 mm. long, yellowish-pulverulent.

Palicourea Albert-Smithii, sp. nov.—Frutex 1-3-metralis, ramulis gracilibus glabris, junioribus subtetragonis viridibus in sicco fusco-olivaceis, vetustioribus subteretibus olivaceo-ochraceis, internodiis elongatis; stipulae in vaginam 2.5-4 mm. longam glabram truncatam connatae, vagina in lobos 4 remotos lineares vel anguste triangulares acutiusculos erectos desinente; folia opposita, petiolo gracili 8-12 mm. longo supra sulcato sparse minuteque adpresso-pilosulo; lamina crasse papyracea, elliptico-oblonga vel oblongo-ovata, 6-13 cm. longa, 2-5 cm. lata, acuminata, apice obtuso, basi acuta, marginata, supra viridis, ad costam vix prominentem minute puberula, subtus pallidior, ad venas minute hirtella, costa gracili elevata, nervis lateralibus utroque latere c. 14, angulo lato adscendentibus, gracilibus, pallidis, arcuatis, marginem attingentibus, nervulis prominentibus reticulatis; inflorescentia sessilis vel 1.5-2.5 cm. longe pedunculata, pyramidali-paniculata, prope basin interdum foliaceo-bracteata, 6-10 cm. longa, 5-7 cm. lata, laxe multiflora, ramulis gracilibus adscendentibus hirtellis; bracteae lineares vel lanceolatae, 2-5 mm. longae, interdum virides, minute hirtellae vel glabrae; flores sparsi, pedicellis gracilibus 2.5-5 mm. longis; hypanthium semiglobosum 1.5 mm. longum glabrum; calyx 1-2 mm. longus profunde 5-lobus, lobis valde inaequalibus oblongis vel late triangularibus obtusis vel acutis glabratis, saepius ciliolatis; corolla caerulea extus glabra tubulosa 17 mm. longa, tubo gracili basi paullo ampliato, fauce 2.5 mm. lato, lobis oblongis obtusis 3 mm. longis; fructus didymo-globosus 5 mm. latus glaber sulcatus, costis obtusis.—Colombia: In wooded valley, Páramo del Hatico, between Toledo and Pamplona, Dept. Norte de Santander, alt. 2,900 m., March 12-13, 1927, *E. P. Killip & Albert C. Smith 20700* (U. S. Nat. Herb. No. 1,355,706, type; duplicate in Y). Between Pamplona and Toledo, in dense woods, 2,800-3,000 m., *Killip & Smith 20008* (W). Toledo, Norte de Santander, 1,700-1,900 m., *Killip & Smith 20096* (W, Y).

The plant is noteworthy for the lax inflorescence and slender blue corollas.

Palicourea albiflora, sp. nov.—Ramuli graciles obtuse tetragoni dense villosulo-tomentosi, internodiis 3-5 cm. longis; stipulae persistentes in vaginam 6-7 mm. longam truncatam dense tomentosam adpressam connatae, vagina in lacinias 4 oblongo-lineares 6-8 mm. longas sparse tomentosas vel glabratas ciliatas approximatas desinente; folia opposita, petiolo 9-13 mm. longo gracili sordido-tomentoso; lamina subcoriacea, anguste elliptico-oblonga vel ovato-oblonga, 7.7-9 cm. longa, 2.5-3.3 cm. lata, abrupte sensimve longiacuminata, acumine angusto versus apicem obtusum sensim attenuato, basi acuta, supra viridis, ad costam sparse villosa aliter glabra, nervis non elevatis, subtus pallida, ad costam gracilem elevatam villosa, ad nervos et nervulos adpresso-pilosula, nervis lateralibus utroque latere c. 12, angulo acuto adscendentibus, gracilibus, prominentibus, arcuatis, in marginem desinentibus, nervulis prominulis arcte reticulatis; inflorescentia terminalis 4.5 cm. longe pedunculata,

pyramidali-paniculata, dense multiflora, c. 4 cm. longa et aequilata, basi trichotoma et foliaceo-bracteata, ramis divaricatis dense villosulo-tomentosis, floribus dense congestis 1-2 mm. longe pedicellatis, bracteis conspicuis linearibus vel anguste oblongis, plerumque 5-8 mm. longis obtusis sparse villosulis; hypanthium breviter villosulum obovoideum 1.5 mm. longum; calyx glabratus, laciniis 5 oblongis 3-4 mm. longis obtusis erectis ciliatis; corolla alba 8-9 mm. longa, in alabastro obtusa, extus sparse breviterque villosula vel glabrata, tubo gracili superne paullo sensimque dilato fauce 2 mm. lato, lobis late oblongis obtusis 1.5 mm. longis suberectis.—Colombia: Cuchilla, Divisadera, *Goudot* (Herb. Kew., type).

In most characters the plant is similar to *P. ionantha* Standl., but in that the pubescence is much less abundant, the calyx lobes are much shorter, and the corolla is glabrous.

Palicourea anacardifolia (H. & B.), comb. nov. *Psychotria anacardifolia* H. & B. ex R. & S. Syst. Veg. 5: 190. 1819. *Palicourea macrocarpa* HBK. Nov. Gen. & Sp. 3: 369. 1820.

Type locality of *P. macrocarpa* given as "In calidis Regni Novo-Granatensis(?)."

Branches glabrous; stipules connate, bifid, the lobes linear, exceeding the petioles; leaves opposite, petiolate, obovate-oblong, short-acuminate at the apex, cuneate at the base, paler beneath and hirtellous, especially on the nerves, 15-22 cm. long; panicles pedunculate, 7.5-10 cm. long, the branches spreading, glabrous, the bracts linear; calyx lobes rounded-ovate, acute; corolla glabrous, 16-18 mm. long; fruit subglobose, as large as the fruit of *Prunus spinosa*.

Because of the large size of the fruit, it is probable that the plant is not a *Palicourea*.

Palicourea anceps, sp. nov.—Arbor parva, ramulis crassiusculis subteretibus glabris, internodiis brevibus; stipulae in vaginam 3-4 mm. longam truncatam glabram connatae, vagina in lobos 4 breves remotos erectos 2-3.5 mm. longos oblongos vel lineares acutos vel obtusos desinente; folia opposita, petiolo crasso 5-10 mm. longo glabro; lamina rigide coriacea, lanceolato-oblonga vel elliptico-oblonga, 7-13.5 cm. longa, 2.5-5 cm. lata, acuminata, acumine obtuso vel acuto, basi acuta, glabra vel rarius subtus ad nervos hinc inde hirtella, supra lutescenti-viridis, costa prominente, nervis manifestis sed non elevatis, subtus vix pallidior, costa gracili elevata, nervis lateralibus utroque latere plerumque 14-16, gracilibus, prominentibus, angulo lato adscendentibus, arcuatis, marginem attingentibus, nervulis prominulis reticulatis; inflorescentia sessilis vel 2-4.5 cm. longe pedunculata, pyramidali-paniculata, dense multiflora, 5-10 cm. longa, 4-9 cm. lata, ramulis adscendentibus glabris; bracteae plerumque oblongae vel ovatae et 2-5 mm. longae, obtusae

vel acutae, glabrae, ciliolatae; pedicelli crassi 1-5 mm. longi apice vix incrassati; hypanthium late turbinatum 2 mm. longum glabrum; calyx 1.5 mm. longus profunde lobatus, lobis late ovatis obtusis vel acutiusculis glabris; corolla tubulosa extus glabra 14-16 mm. longa, tubo basi paullo ampliato, superne vix dilatato, fauce 3-4 mm. lato, lobis 2 mm. longis oblongo-ovatis intus minute papillosis; antherae inclusae; stylus interdum exsertus; fructus subglobosus 6-8 mm. longus glaber purpureo-niger sulcatus, costis obtusis.—Colombia: In forest, Canaan, Mount Puracé, Dept. El Cauca, alt. 3,100-3,300 m., June 11-13, 1922, *Francis W. Pennell and Ellsworth P. Killip 6608* (U. S. Nat. Herb. No. 1,140,595, type; duplicates in G and Y). Paletará to Calaguala, Cauca, open brushy forest, 3,000-3,200 m., *Pennell 7082* (W, G, Y). Cordillera Oriental, east of Neiva, in forest, 2,000-2,500 m., *Rusby & Pennell 612* (W, G, Y). Coconuco, Cauca, in woodland along stream, 2,300-2,500 m., *Killip 6876* (W, G, Y). Without locality, *Ariste-Joseph 702* (W, Y; determination doubtful).

The color of the corolla is described variously in the collector's notes: "tube deep blue, lobes dark green;" "yellow and green;" "green-yellow;" and "blue and yellow."

Palicourea Andrei, sp. nov.—Ramuli validi subteretes fusco-brunnei breviter pilosuli; stipulae late ovatae obtusae 7 mm. longae pilosulae subpersistentes; folia opposita, petiolo crasso 2 cm. longo breviter piloso; lamina ovato-ovalis, 13-16 cm. longa, 8.5-10 cm. lata, obtusa(?), basi late rotundata, subcoriacea, supra obscure viridis, adpresse pilosula, nervis non elevatis, subtus pallidior, dense pilosa, costa gracili elevata, nervis lateralibus utroque latere c. 22, gracilibus, prominentibus, angulo fere recto divergentibus, leviter arcuatis, marginem attingentibus; inflorescentia 6.5 cm. longe pedunculata, cymoso-paniculata, c. 8 cm. longa et lata, dense multiflora, trichotoma, ramis suberectis dense villoso-pilosulis, floribus sessilibus dense confertis; bracteae late ovatae acuminatae 1.5-3 mm. longae pilosulae; hypanthium semiglobosum 1.5 mm. longum dense pilosulum; calyx 2-2.5 mm. longus pilosulus breviter lobatus, lobis late ovatis obtusis; corolla hypocrateriformis extus minute villosula, tubo fere 3 cm. longo basi ampliato, superne vix dilatato, fauce 4 mm. lato, lobis anguste oblongis 7 mm. longis obtusis.—Colombia: Altaquer, May 23, 1876, *E. André 3351* (Herb. N. Y. Bot. Gard., type; duplicate in K).

The material of this plant is far from satisfactory for study, and on this account it is not certain that it belongs properly in the genus *Palicourea.*

Palicourea angustifolia HBK. Nov. Gen. & Sp. 3: 367. 1820. *P. querceticola* Schum. & Krause, Bot. Jahrb. Engler 40: 332. 1908. *P. quindiensis* Wernh. Journ. Bot. 55: 282. 1917. *P. Moritzii* Wernh., op. cit. 283. 1917.

Dense forest, Alto de Pesares near Popayán, 2,300-2,700 m., *Lehmann 5906* (F, type collection of *P. querceticola*). Schumann and Krause report also *Lehmann 3713*, collected near Paisbamba, and *Lehmann CLXIV*, without locality. Mount Quindío, at 2,340 m., *Triana 78* (*1663*) (K, type collection of *P. quindiensis*). Without locality, *Moritz 844* (W, type collection of *P. Moritzii;* ascribed to Colombia, but probably from Venezuela). Near Popayán, 1,700-2,500 m., *Lehmann B.T.1228* (K, Y). Highlands of Popayán, 1,600-2,300 m., *Lehmann B.T.390* (F, G, K, Y). Popayán, *Lehmann K.134* (F, K). Cordillera Occidental, 2,400 m., *Langlassé 91* (W, G, a very densely pubescent form). Angelopolis, *Toro 905* (Y). Caldas, 2,500 m., *Dawe 782* (W, K, Y). Capilla, *Lehmann B.T.516* (K, Y). Titiribí, *Toro 1200* (Y), *1196* (Y). Las Nubes, 1,350 m., *H. H. Smith 1807* (Y). Santa Marta, *H. H. Smith 1816* (F, W, M, P, S). Region of Bogotá, in 1919, *Ariste-Joseph* (F, W). Without locality, *Ariste-Joseph 706* (W, Y). Orocné, *Ariste-Joseph A837* (W). Vicinity of Bogotá, *Ariste-Joseph B43* (W), *A359* (W). Sopó, *Ariste-Joseph 769* (W). Canoas, *Ariste-Joseph A96* (W). Hills of Miraflores, Cauca, 1,600-1,200 m., *Pittier 871* (W, G, Y). Chiquiribamba, *André K.502* (K, Y). Magana, Caldas, 3,000-3,200 m., *Killip & Hazen 9481* (W, G, Y). Buenavista to Azufral, Tolima, 1,800-2,500 m., *Killip & Hazen 9579* (W, G, K, P, Y). Pinares, Caldas, 2,600-2,900 m., *Pennell 9186* (W, G). La Cumbre, El Valle, 1,800-2,100 m., *Pennell 5710* (W, G, Y). Murillo, Tolima, 2,200-2,600 m., *Pennell 3161* (Y), *3160* (Y). Tequendama, 2,300 m., *Pennell 1972* (Y). Balsillas, Huila, 2,100 m., *Rusby & Pennell 772* (Y). Cordillera Oriental east of Neiva, Huila, 1,300-2,300 m., *Rusby & Pennell 585* (Y), *980* (Y). Between Boquilla and Volcancito, *Holton 424* (G, P, Y). Fusagasugá(?), *André K. 1113* (K, Y). Tequendama(?), *André K.1114* (K). Without locality, *Triana* (K); *Triana 128* (K), *129* (K); *Linden 1082* (K), *1083* (K). Antioquía, 1,950 m., *Kalbreyer 1636* (K); alt. 2,100-2,400 m., *Kalbreyer 1500* (K). Ocaña, 2,550 m., *Kalbreyer 610* (K). San Pedro, Ocaña, 1,800 m., *Schlim 665* (K). Also in Venezuela.

A shrub or small tree, sometimes 5 m. high, the young branches densely puberulent or rarely glabrous; stipule sheath 4-6 mm. long, the lobes subulate, erect, equaling or longer than the sheath; leaves short-petiolate, oblong or oblong-lanceolate, 6-23 cm. long, 2-5 cm. wide, long-acuminate at the apex, obtuse or acute at the base, thick, usually puberulent or pilose beneath, at least on the nerves; panicle pedunculate, thyrsoid, many-flowered, open or dense, often equaling the leaves, the branches usually ascending and densely puberulent or pilose, the bracts minute; flowers pedicellate; calyx minute, acutely dentate; corolla tubular, 10-15 mm. long or even longer, usually puberulent or short-pilose but sometimes glabrate; fruit 4-5 mm. long, purple-black.

The color of the corolla is given as "purple," "violet-purple," "violet," "pink," and "purplish." The specimens referred here show considerable variation, but I have been unable to divide them

satisfactorily. *P. quindiensis* is described as having flowers only 8-9 mm. long, but there is great variation in the length of the corolla, the flowers of some plants attaining a length of nearly 2 cm.

Palicourea antioquiana, sp. nov.—Frutex vel arbor parva, ramulis validis subteretibus vel obtuse tetragonis dense villoso-tomentosis vel breviter hirsutis, vetustioribus ochraceis, internodiis brevibus vel elongatis; stipulae persistentes in vaginam adpressam vel laxam 6-10 mm. longam truncatam extus dense villoso-tomentosam connatae, vagina in lobos 4 approximatos lineares vel linearilanceolatos superne attenuatos apice acutos vel obtusos 5-13 mm. longos erectos extus tomentellos desinente; folia opposita, petiolo valido 1-2.3 cm. longo dense villosulo-tomentoso; lamina subcoriacea, elliptico-oblonga vel elliptica, rarius lanceolato-oblonga, 12-20 cm. longa, 4.5-9 cm. lata, apice breviter et saepe abrupte acuminata, basi acuta, supra fusca vel lutescens, ad costam breviter villosa, plerumque rhaphidibus angustis pallidis conspersa, costa paullo elevata, nervis lateralibus manifestis, subtus paullo pallidior, dense molliterque pubescens, costa valida elevata, nervis lateralibus utroque latere c. 17, angulo angusto vel latiusculo adscendentibus, prominentibus, crassiusculis, arcuatis, marginem attingentibus, nervulis prominentibus laxe reticulatis; inflorescentia 5-7 cm. longe pedunculata, thyrsoideo-paniculata, dense multiflora, 6-11.5 cm. longa, 5-8 cm. lata, ramulis crassis divaricatis vel adscendentibus breviter villosulo-tomentosis; bracteae lineares vel lanceolato-lineares, 8-18 mm. longae, persistentes, attenuatae, extus tomentellae; flores conferti sessiles vel 2 mm. longe pedicellati, pedicellis crassis; hypanthium late turbinatum 2.5 mm. longum dense tomentosum; calyx dense vel sparse tomentosus, fere ad basin 5-fidus, laciniis linearibus vel lanceolato-linearibus 7-13 mm. longis, apicem versus sensim angustatis, intus glabris; corolla albida vel lutescens, extus dense villoso-tomentosa, 17-22 mm. longa, tubo 4-5 mm. lato, basi paullo ampliato, superne vix dilatato, lobis erectis vel patulis ovato-oblongis 2-4 mm. longis obtusis apice cucullatis; stylus interdum exsertus.—Colombia: Western Andes of Popayán, alt. 1,900-2,600 m., *F. C. Lehmann 7934* (Herb. Field Mus. No. 578,691, type; duplicates in K and W). In forest below San José, Cauca, 2,100-2,500 m., *Pennell 7631* (W, Y); at 2,400-2,700 m., *Pennell & Killip 7352* (W), *7345* (W). In forest above Aguada, Antioquía, 2,300 m., *Lehmann 3132* (K, W). Prov. Antioquía, 1,350-1,650 m., forest border, *Kalbreyer 1693* (K). Santo Domingo, Antioquía, 1,950 m., *Kalbreyer 1709* (K).

Palicourea antioquiana is a well-marked species, noteworthy because of its copious pubescence and large corolla and calyx.

Palicourea apicata HBK. Nov. Gen. & Sp. 3: 367. *pl. 285.* 1820.

Without locality ("New Granada"), *Linden 1085* (G, K). Also in Venezuela.

A glabrous shrub; stipule sheath elongate, sometimes equaling the petiole, obscurely bidentate; leaves opposite, petiolate, subcoriaceous, oblong or elliptic-oblong to oblanceolate-oblong, 5-13 cm. long, 2-4 cm. wide, acuminate, narrowed to the base, paler beneath; inflorescence cymose-paniculate, sessile, lax, rather few-flowered, usually shorter than the leaves, the branches ascending or spreading; flowers pedicellate; calyx lobes minute, acute or obtuse; corolla 8-9 mm. long, glabrous, purple.

Palicourea Aristei, sp. nov.—Ramuli graciles, obtuse tetragoni, in sicco fusco-olivacei, minute adpresso-pilosuli vel glabrati, internodiis elongatis; stipulae adpressae, in vaginam truncatam puberulam 2-3 mm. longam connatae, vagina in lobos 4 remotos triangulari-oblongos obtusos vel acutos erectos desinente; folia opposita, petiolo gracili 5-15 mm. longo strigoso; lamina subcoriacea, ovali-elliptica vel rarius ovato-elliptica, 4-10.5 cm. longa, 2-5.5 cm. lata, abrupte et brevissime acuminata, acumine obtuso, basi late cuneata vel obtusa, supra viridis, interdum ad costam sparse adpresso-pilosula, nervis manifestis sed vix elevatis, subtus pallidior, praesertim ad nervos hirtella vel adpresso-pilosula, costa gracili elevata, nervis lateralibus utroque latere c. 15, gracilibus, prominentibus, angulo lato adscendentibus, arcuatis, marginem attingentibus, nervulis prominentibus reticulatis; inflorescentia sessilis vel 2.5-4.5 cm. longe pedunculata, corymbiformis, dense multiflora, 5-9.5 cm. longa, 4-11 cm. lata, basi trichotoma, interdum basi foliaceo-bracteata, ramulis gracilibus adscendentibus sparse puberulis; bracteae ovatae vel lineares, 1-5 mm. longae, acutae, adpresso-pilosulae; flores pedicellati, pedicellis 1-3 mm. longis validis apice paullo incrassatis; hypanthium late turbinatum 1.5 mm. longum glabrum; calyx fere 2 mm. longus glaber ad medium 5-lobus, lobis late ovatis ciliolatis apice obtusis vel rotundatis; corolla gracilis in alabastro 12-16 mm. longa, extus minutissime fulvo-puberula, tubo basi paullo ampliato, superne sensim dilatato, lobis apice minute cornutis.—Colombia: Without locality, *Bro. Ariste-Joseph 705* (U. S. Nat. Herb. No. 1,121,651, type; duplicate in Y). Chapinero, near Bogotá, *Ariste-Joseph A719* (W).

In many details the plant here described agrees with the original description of *P. vaginata* Benth., of the same region, but in that the leaves are said to be softly pubescent beneath, and the corolla glabrous.

Palicourea bryophila, sp. nov.—Frutex vel arbor, ramulis crassiusculis subteretibus in sicco fuscis laevibus glabris, internodiis brevibus vel elongatis; stipulae in vaginam laxam 7-9 mm. longam truncatam glabratam connatae, vagina in lobos 4 approximatos lineares 6-10 mm. longos desinente; folia opposita, petiolo crassiusculo 1.2-3 cm. longo glabro; lamina papyracea, elliptico-oblonga vel elliptico-obovata, 15-19 cm. longa, 6.5-8 cm. lata, abrupte breviterque acuminata, basin versus angustata, marginata, supra glabra

vel ad costam puberula, rhaphidibus minutis pallidis saepius conspersa, subtus paullo pallidior, ad nervos pilosa vel glabrata, costa crassa elevata, nervis lateralibus utroque latere c. 16, angulo lato adscendentibus, gracilibus, elevatis, arcuatis, marginem attingentibus, nervulis prominulis laxe reticulatis; inflorescentia sessilis vel 5 cm. longe pedunculata, pyramidali-paniculata vel thyrsoidea, laxe multiflora, 9-15 cm. longa, 6-8 cm. lata, ramulis divaricatis vel adscendentibus glabris; bracteae lineares vel oblongae, 5-7 mm. longae, attenuatae, glabrae; pedicelli 3-7 mm. longi crassi glabri; hypanthium late turbinatum 2 mm. longum glabrum; calyx late campanulatus 3-4 mm. longus glaber, fere ad medium 5-lobus, laciniis ovalibus vel oblongo-ovatis, apice rotundatis vel obtusis; corolla caerulea tubulosa 15-17 mm. longa, extus glabra, tubo basi paullo ampliato, fauce 4 mm. lato, lobis oblongis obtusis 3-3.5 mm. longis; antherae subexsertae lineares.—Colombia: Mossy forest, Cerro Tatama, Dept. Caldas, alt. 2,800-3,300 m., September 8-10, 1922, *Francis W. Pennell 10465* (U. S. Nat. Herb. No. 1,140,694, type). Salento, Caldas, 2,100-2,500 m., *Pennell 8868* (W). Without locality, *Triana 1728* (K).

Related to *P. Toroi* Standl., but in that the stipules are very different.

Palicourea caldasana, sp. nov.—Arbor parva, ramulis obtuse tetragonis validis minute puberulis vel hirtellis, vetustioribus subteretibus ochraceis; stipulae breviter connatae, 5-10 mm. longae, puberulae vel glabratae, ad medium bilobae, adpressae, lobis fere contiguis oblongis vel ovatis obtusis; folia opposita, petiolo gracili vel valido 6-15 mm. longo supra sulcato minute puberulo; lamina subcoriacea, ovali-elliptica, elliptico-oblonga vel obovato-oblonga, 6.5-13 cm. longa, 2.2-5.5 cm. lata, abrupte acuminata vel tantum acuta, basi angustata vel rarius obtusa, supra viridis, glabra vel ad costam sparse puberula, costa prominente, nervis manifestis sed non prominentibus, subtus paullo pallidior, ad nervos hispidula vel puberula, costa gracili elevata, nervis lateralibus utroque latere 11-15, angulo lato vel acuto adscendentibus, gracilibus, prominentibus, arcuatis, marginem attingentibus; inflorescentia 2-3.5 cm. longe pedunculata, thyrsoideo-paniculata vel pyramidali-paniculata, 8-14 cm. longa, 4-10 cm. lata, dense multiflora, ramulis plerumque divaricatis puberulis; bracteae triangulares vel lineares, acuminatae vel attenuatae, 1.5-6 mm. longae, ciliolatae; pedicelli 1.5-6 mm. longi; hypanthium turbinatum 1.5 mm. longum glabratum; calyx 1.5-3 mm. longus profunde 5-lobus, lobis ovalibus vel ovatis glabratis apice obtusis vel rotundatis, rarius acutis; corolla lutea tubulosa extus glabra vel sparse minuteque puberula, 10-13 mm. longa, basi paullo ampliata, fauce 2.5-3 mm. lata, lobis late ovatis vel oblongo-ovatis obtusis 1.5-2 mm. longis, intus minute papillosis; antherae subexsertae lineares 2.5 mm. longae.—Colombia: In thicket, Panares, above Salento, Dept. Caldas, alt. 2,600-2,900 m., August 2-10, 1922, *Francis W. Pennell 9191* (U. S. Nat. Herb. No. 1,140,678, type; duplicates in G and Y). Salento to Laguneta, Caldas, in forest,

2,800-3,100 m., *Killip & Hazen 9144* (W, G, Y). Alaska, above Salento, Caldas, 2,900-3,200 m., *Killip 9810* (W, G, Y).

From *P. vaginata* Benth. this plant differs in its large panicles and well-developed calyx lobes.

Palicourea caloneura Rusby, Descr. N. Sp. S. Amer. Pl. 142. 1920.

Top of San Lorenzo Ridge, 2,160 m., *H. H. Smith 1808* (Y, type; F, W, M, P, S).

A shrub 0.6-1.2 m. high, the branches glabrous; stipule sheath 2.5 mm. long, the lobes separated, narrowly triangular, of equal length; leaves petiolate, elliptic or oblong-elliptic, 4-6 cm. long, 1.5-3 cm. wide, obtuse or acute, acute to nearly rounded at the base, coriaceous, short-pilose beneath along the nerves; panicle short-pedunculate or sessile, 3-4 cm. long, thyrsoid, the branches ascending or spreading, sparsely puberulent or glabrate, the bracts minute; flowers sessile or short-pedicellate; calyx lobes minute, obtuse or acute; corolla glabrous, pinkish, 10 mm. long, narrow-funnelform.

Palicourea calophlebia, sp. nov.—Frutex vel arbor parva, ramulis crassis obtuse tetragonis dense minuteque puberulis vel hirtellis, internodiis brevibus; stipulae in vaginam 7-10 mm. longam truncatam laxam vel adpressam puberulam vel adpresso-pilosulam connatae, vagina in lobos 4 lineares sensim attenuatos erectos 8-13 mm. longos desinente; folia opposita, petiolo crasso 1.2-2.5 cm. longo dense puberulo supra late sulcato; lamina rigide papyracea vel subcoriacea, elliptica, late elliptica vel obovato-elliptica, 18-27 cm. longa, 9.5-14 cm. lata, apice breviter cuspidato-acuminata, acumine acuto vel obtuso, basi acuta vel abrupte contracta et breviter decurrens, supra viridis, glabra vel ad costam prominentem sparse puberula, nervis prominulis, subtus pallidior, saltem ad costam nervosque hirtella vel puberula, costa crassa elevata, nervis lateralibus utroque latere c. 23, angulo lato divergentibus, gracilibus, prominentibus, arcuatis, juxta marginem arcuato-conjunctis, nervulis prominentibus eleganter reticulatis; inflorescentia 1.5-4 cm. longe pedunculata, thyrsoideo-paniculata, densissime multiflora, contracta, 8-16 cm. longa, 3-7 cm. lata, interdum basi foliaco-bracteata, rhache crassa tomentella vel dense puberula, ramulis primariis brevissimis adscendentibus, divaricatis vel subreflexis; bracteae oblongo-ovatae, ovatae vel late rhombico-ovatae, 6-11 mm. longae, acutae vel obtusae, tenues, persistentes, glabratae, venosae; flores dense conferti, sessiles; hypanthium late turbinatum 1 mm. longum glabrum; calyx 2.5-3.5 mm. longus profunde 5-lobus glaber vel glabratus, lobis ovatis vel oblongo-ovatis acutis; corolla alba tubulosa extus glabra vel minute sparseque puberula, 7-9 mm. longa, tubo 2-2.5 mm. lato, lobis oblongis obtusis fere 2 mm. longis; antherae inclusae; stylus interdum breviter exsertus.—Colombia: In forest, west of Río Boquía, Dept. Caldas, alt. 1,600-1,900 m., July 27, 1922, *Ellsworth P. Killip and Tracy E. Hazen 8804* (U. S. Nat. Herb. No. 1,140,659,

type; duplicates in G and Y). Tocotá, Cauca, 2,000 m., *Lehmann 2936* (K, W). Dauro, *Toro 1142* (Y). Without locality, *Triana 1644* (K).

This species is easily recognized by the very large, handsomely veined leaves, and by the narrow dense spikelike inflorescence, copiously furnished with broad bracts.

Palicourea caprifoliacea Wernh. Journ. Bot. 55: 340. 1917.

Type from Colombia, *Linden 1080*. Río Dagua, Cauca, 2,000 m., *Lehmann 2919* (W). Without locality, *Triana 127* (K). Prov. Antioquía, *Kalbreyer 1290* (K).

A shrub or small tree; stipules 1 cm. long, bifid, the lobes acute; leaves short-petiolate, elliptic to oblanceolate or obovate, 8-22 cm. long, 3-12 cm. wide, short-acuminate, at the base acute to attenuate, chartaceous, sparsely pubescent beneath on the nerves; panicle pedunculate, narrowly pyramidal, many-flowered, 12-28 cm. long, the branches ascending or spreading, the bracts inconspicuous; flowers pedicellate or sessile; calyx minute, the lobes obtuse; corolla yellow, glabrous, 5-6 mm. long.

Palicourea caucana, sp. nov.—Frutex, ramulis gracilibus dense scaberulo-puberulis, vetustioribus subteretibus griseo-ochraceis, internodiis 2-5 cm. longis; stipulae fere liberae, 4-5 mm. longae, dense puberulae, profunde bilobae, lobis ovato-oblongis obtusis erectis; folia opposita, petiolo crasso 3-8 mm. longo dense puberulo; lamina subcoriacea, oblongo-elliptica vel oblongo-obovata, 4-7 cm. longa, 1.7-3 cm. lata, abrupte angusteque acuminata, apice obtusa, basi acuta vel subobtusa, supra viridis, glabra vel ad costam subimpressam sparse puberula, nervis obscuris, subtus pallida, praesertim ad nervos asperulo-puberula, costa gracili elevata, nervis lateralibus utroque latere c. 12, gracilibus, prominulis, angulo lato adscendentibus, marginem attingentibus; inflorescentia 4.5 cm. longe pedunculata, basi bracteis 2 lanceolatis foliaceis 12-15 mm. longis fulcrata, dichotoma, ramis primariis 2-3 cm. longis puberulis, floribus cymosis congestis; bracteae oblongae vel ovatae, virides, obtusae vel acutae, 4-6 mm. longae, tenues, glabrae, ciliatae, bracteolis bracteis conformibus, calycem arcte amplectentibus et multo excedentibus; flores conferti pauci sessiles vel pedicellis 2-4 mm. longis stipati; hypanthium semiglobosum 1 mm. longum puberulum; calyx 1 mm. longus, lobis late ovatis obtusis vel acutis ciliolatis; corolla rubra infundibuliformis extus glabra, tubo gracili 12-13 mm. longo basi ampliato, superne sensim dilatato, fauce 3 mm. lato, lobis triangulari-oblongis acutis 4 mm. longis, intus minute papillosis; filamenta 3-4 mm. longe exserta gracillima glabra, antheris linearibus 2.5 mm. longis.—Colombia: In forest, La Gallera, Micay Valley, Dept. El Cauca, alt. 2,000-2,200 m., July 1, 1922. *Ellsworth P. Killip 7957* (U. S. Nat. Herb. No. 1,140,634, type).

Although it would be preferable to have more ample material of this plant for study and description, the single specimen available

shows that it is distinct from anything known otherwise from Colombia. The long-exserted stamens make its recognition easy.

Palicourea chaquirana, sp. nov.—Frutex ut videtur dense ramosus, ramulis gracilibus subteretibus fuscis glabris, vetustioribus conspicue lenticellatis et rimosis; stipulae persistentes, breviter connatae, erectae, 2-2.5 mm. longae, ad medium bilobae, lobis ovato-triangularibus obtusis glabris; folia opposita, petiolo gracili 5-7 mm. longo glabro supra late sulcato; lamina subcoriacea, lanceolato-elliptica, 2.5-4.5 cm. longa, 1-2 cm. lata, longiacuminata, basi acuta vel cuneata, manifeste marginata, supra viridis, ad costam prominulam minute puberula vel glabra, nervis subimpressis, subtus pallida, lutescens, secus costam crassiusculam elevatam ciliata, aliter glabra, nervis lateralibus utroque latere c. 10, angulo lato adscendentibus, gracilibus, prominentibus, valde arcuatis, juxta marginem conjunctis, nervulis prominulis reticulatis; inflorescentia sessilis, trichotoma, ramulis primariis erectis glabris 1-1.5 cm. longis apice umbellatim ramosis, floribus in cymulas densas paucifloras dispositis, sessilibus vel subsessilibus; bracteae ovatae 1-2 mm. longae acutae persistentes; hypanthium cylindrico-turbinatum 1.5 mm. longum glabrum; calyx glaber 0.5 mm. longus obsolete remoteque denticulatus; corolla alba infundibuliformis extus minutissime puberula vel fere glabra, 9 mm. longa, basi ampliata, tubo dilatato fauce 4 mm. lato, lobis oblongo-ovatis acutiusculis erectis 2-2.5 mm. longis intus minute papillosis; antherae subexsertae lineares 2.5 mm. longae; fructus ovoideo-globosus 6 mm. longus glaber profunde sulcatus, costis obtusis.—Colombia: Shrub zone below Páramo de Chaquiro, Cordillera Occidental, Dept. Bolívar, alt. 2,800-3,100 m., February 24, 1918, *Francis W. Pennell 4312* (Herb. N. Y. Bot. Gard., type).

A well-marked species because of the small leaves and the arrangement of the inflorescence.

Palicourea corymbifera (Muell. Arg.), comb. nov. *Psychotria corymbifera* Muell. Arg. in Mart. Fl. Bras. 6[6]: 247. 1881.

Reported by Mueller from San Carlos on the Río Negro, *Spruce 3486*. Also in Brazil and Venezuela.

Branchlets glabrous; leaves quaternate; stipule sheath 3 mm. long, bidentate, the teeth scarcely 1 mm. long; leaf blades elliptic-lanceolate, 13-20 cm. long, cuspidate, acute at the base, minutely puberulent on the veins; panicle umbelliform, 6-9 cm. broad, the lowest branches verticillate; calyx 10-denticulate; corolla 8 mm. long, ferruginous-tomentulose; fruits 5 mm. broad.

Palicourea crocea (Sw.) R. & S. Syst. Veg. 5: 193. 1819. *Psychotria crocea* Sw. Prodr. Veg. Ind. Occ. 44. 1788.

Mountain forest near Valparaíso, 1,200-1,500 m., *H. H. Smith 1824* (F, W, G, M, P, Y). San Andrés de la Sierra, Magdalena, 1,100-1,300 m., *Pittier 1642* (W). Without locality, *Triana 1655*

(K), *1643* (K). Ocaña, 1,200 m., *Schlim 1* (K); at 1,050 m., *Schlim 694* (K). Ocaña, 1,800 m., *Kalbreyer 520* (K). Toche, *Holton 423* (K). Near Ocaña, 1,500 m., *Wyatt* (K). Widely distributed in tropical America.

A nearly glabrous shrub or tree, sometimes 7.5 m. high; stipules 3.5 mm. long, the lobes subulate; leaves short-petiolate, firm, elliptic-oblong or ovate-oblong, 8-15 cm. long, long-acuminate at the apex, acute or obtuse at the base; panicles sessile or pedunculate, pyramidal, open, many-flowered, the branches spreading or ascending, glabrous or puberulent, the bracts minute; flowers long-pedicellate; calyx lobes minute, ovate or rounded; corolla red or orange, tubular, glabrous, 8-12 mm. long; fruit purple-black, 4-5 mm. long.

Palicourea cyanantha, sp. nov.—Arbor, ramulis gracilibus obtuse tetragonis pallide olivaceis minute puberulis vel hirtellis, internodiis 3-4 cm. longis; stipulae in vaginam 6-7 mm. longam truncatam puberulam connatae, vagina in lobos 4 approximatos erectos lineares longiattenuatos 1.5-2.5 cm. longos 1-1.5 mm. latos glabratos desinente; folia opposita, petiolo gracili 1-1.8 cm. longo minute strigilloso vel glabrato supra late sulcato; lamina oblongo-elliptica, papyracea, 20-22 cm. longa, 7.5-8.5 cm. lata, abrupte angusteque acuminata, basi acuta vel obtusiuscula et leviter inaequalis, supra viridis, glabra vel ad costam prominentem sparse puberula, nervis prominulis, subtus paullo pallidior, ad costam gracilem elevatam breviter hirsuta et puberula, ad nervos sparse puberula vel glabrata, nervis lateralibus utroque latere c. 17, angulo lato adscendentibus, gracilibus, prominentibus, arcuatis, juxta marginem conjunctis, nervulis prominulis eleganter reticulatis; inflorescentia 2.5 cm. longe pedunculata, thyrsoideo-paniculata, dense multiflora, 7 cm. longa et 4 cm. lata, rhache fere glabra, ramulis primariis vix 1 cm. longis divaricatis; bracteae caeruleae tenues venosae late ovatae vel oblongo-ovatae, 1-1.8 cm. longae, acutae, fere glabrae, persistentes; flores conferti, pedicellis ad 3 mm. longis; hypanthium late turbinatum 1.2 mm. longum glabrum; calyx 3-4 mm. longus glaber fere ad basin 5-fidus, laciniis inaequalibus 3-4 mm. longis lineari-oblongis acutiusculis; corolla "caerulea," non visa; fructus globosus caeruleus fere 5 mm. diam., leviter sulcatus, costis obtusis.—Colombia: In forest, Miraflores, Palmira, Cordillera Central, Dept. El Valle, alt. 1,800-2,100 m., May 27, 1922, *Ellsworth P. Killip 6139* (U. S. Nat. Herb. No. 1,140,583, type; duplicate in Y).

Palicourea cyanantha must be a showy plant when in flower because of the blue color of the whole inflorescence. Distinguishing characters are the unusually long stipule lobes and the large bracts of the inflorescence, which almost conceal the flowers.

Palicourea demissa, sp. nov.—Frutex vel arbor parva 2.5-6 m. alta, ramulis validis crassis obtuse tetragonis glabris, vetustioribus

ochraceis, internodiis brevibus; stipulae in vaginam laxam glabram viridem persistentem 4-6 mm. longam et 4-9 mm. latam connatae, vagina truncata in lobos 4 remotos oblongo-lineares obtusos vel acutiusculos 3-5 mm. longos desinente; folia opposita, petiolo 0.8-2 cm. longo gracili vel validiusculo supra sulcato; lamina rigide herbacea, elliptica, rotundato-elliptica, oblongo-elliptica vel rarius obovata, 9-14.5 cm. longa, 4-7.5 cm. lata, apice abrupte breviterque, interdum brevissime, acuminata, rarius sensim acuminata, acumine obtuso, basi acuta vel interdum obtusa, supra glabra, costa nervisque subimpressis vel planis, subtus paullo pallidior, secus costam hinc inde breviter pilosa vel fere omnino glabra, costa valida elevata, nervis lateralibus utroque latere 11-16, elevatis, arcuatis, angulo lato adscendentibus, juxta marginem laxe conjunctis, margine paullo incrassato; panicula sessilis vel usque ad 7 cm. longe pedunculata, thyrsoidea, 7-10 cm. longa, 4-7 cm. lata, dense multiflora, rhache percurrente, ramulis primariis validis adscendentibus vel divaricatis glabris; bracteae ovatae vel lineari-lanceolatae, plerumque 2-3 mm. longae, infimis 7 mm. longis, acutae vel attenuatae, ciliolatae; pedicelli validi 3-7 mm. longi; hypanthium turbinatum 2-2.5 mm. longum glabrum; calyx 1.5-2 mm. longus 5-lobus, lobis inaequalibus ovatis vel rotundatis acutis vel obtusis ciliolatis in sicco viridibus; corolla lutea tubulosa extus glabra 12 mm. longa, tubo 2.5-3.5 mm. lato, lobis oblongis obtusis 3 mm. longis intus minute papillosis; stylus interdum exsertus; fructus purpureus vel nigrescens globosus 7-9 mm. diam., profunde sulcatus.—Colombia: Edge of woods, vicinity of Loso, north of Toledo, Dept. Norte de Santander, alt. 2,200-2,400 m., March 6-7, 1927, *E. P. Killip & Albert C. Smith 20393* (U. S. Nat. Herb. No. 1,355,444, type; duplicate in Y), *20472* (W, Y), *20388* (W, Y). Road from Pamplona to Toledo, Norte de Santander, in dense forest, 2,800-3,000 m., *Killip & Smith 20007* (W, Y), *19958* (W, Y), *19902* (W, Y). Eastern slope of Páramo del Hatico, Norte de Santander, edge of woods, 2,900 m., *Killip & Smith 20598* (W). Western slope of Páramo del Hatico, edge of woods, 2,800-2,900 m., *Killip & Smith 20728* (W, Y). Western slope of Cerro San Vicente, near Charta, Santander, dense wet woods, 2,500-2,700 m., *Killip & Smith 19070* (W, Y).

Palicourea demissa is related to *P. vaginata* Benth., but it differs from that species in the large calyx and hypanthium and in the longer and stouter corolla tube.

Palicourea densa, sp. nov.—Frutex 1.5-2.5 m. altus, ramulis crassis acute quadrangularibus, novellis sparse pilosulis vel glabratis; stipulae persistentes in vaginam glabram truncatam 7 mm. longam connatae, vagina in lobos 4 lineares obtusos distantes glabros 10 mm. longos desinente; folia opposita, petiolo valido glabro vel glabrato 2.5-3 cm. longo; lamina obovato-ovalis, c. 20 cm. longa et 12 cm. lata, apice late rotundata et vix apiculata, basi acuta vel prope basin abrupte angustata et breviter decurrens, firme membranacea, supra viridis, glabra, costa et nervis prominulis,

subtus paullo pallidior, ad costam et nervos inconspicue adpresso-pilosula vel glabrata, costa crassa elevata, nervis lateralibus utroque latere c. 17, angulo lato divergentibus, gracilibus, subarcuatis, prominentibus, in marginem desinentibus; inflorescentia violacea, terminalis, 9.5 cm. longe pedunculata, spiciformis, 5.5 cm. longa et 3 cm. lata, densissime multiflora, pedunculo crasso sparse pilosulo angulato, floribus in glomerulis densis sessilibus secus axem paniculae glomeratis sessilibus vel subsessilibus, bracteis plerumque c. 1 cm. longis, oblongis vel lanceolatis, acutis vel obtusis, sparse pilosulis vel glabratis, ciliatis; hypanthium turbinatum 2 mm. longum dense pilis fulvis adpresso-pilosum; calyx 5-fidus, laciniis oblongis 4-5 mm. longis obtusis, sparse vel versus basin densius pilosulis vel glabratis; corolla 10 mm. longa extus pilis crassis multicellularibus sparse vel dense villosa, tubo crasso superne sensim dilatato ore fere 3 mm. lato, basi paullo ampliato, intus paullo supra basin densissime barbato, lobis 5 oblongis obtusis apice subcucullatis 2-2.5 mm. longis.—Colombia: Pulpería, Prov. Antioquía, in forest shade, alt. 1,950 m., May, 1880, *Kalbreyer 1635* (Herb. Kew., type).

Evidently a relative of the Colombian *P. dorantha* Wernham, which differs in its short-acuminate leaves, large inflorescence, and much larger corolla.

Palicourea dives, sp. nov.—Frutex 2-3-metralis, ramulis gracilibus teretibus glabris, internodiis elongatis; stipulae in vaginam glabram 3-4 mm. longam connatae, parte libera biloba, lobis 1.5-3 mm. longis, falcato-triangularibus, obtusis, sinu rotundato vel obtuso sejunctis; folia opposita, petiolo gracili 1.5-2 cm. longo glabro; lamina firme membranacea, oblongo-elliptica, 11-17 cm. longa, 5-7 cm. lata, abrupte longiacuminata, acumine angusto attenuato, basi abrupte angustata et longe decurrens, supra viridis, minutissime scaberula et asperula, costa subimpressa, nervis prominulis, subtus pallidior, glabra, minute elevato-puncticulata, costa gracili elevata, nervis lateralibus utroque latere c. 26, gracillimis, angulo lato adscendentibus, arcuatis, prominentibus, juxta marginem conjunctis, nervulis arcte reticulatis et subimpressis; inflorescentia terminalis, 11 cm. longe pedunculata, corymbosa, c. 5.5 cm. longa et 9 cm. lata, dense multiflora, basi trichotoma, ramis curvo-divaricatis, glabris, floribus congestis sessilibus; bracteae conspicuae, flores fere occultantes, foliaceae, late oblongae vel ovales, 6-10 mm. longae, apice obtusae vel rotundatae, glabrae, ut videtur coloratae, persistentes; hypanthium late turbinatum glabrum; calyx c. 1.2 mm. longus glaber, lobis late ovatis obtusis dorso subcarinatis; corolla caerulea in alabastro 1 cm. longa, extus glabra, apice obtusa, tubo gracili superne paullo dilatato ore 1.8 mm. lato, lobis oblongis 2.5 mm. longis obtusis; fructus subglobosus 4-6 mm. longus, pyrenis dorso obtuse costatis.—Colombia: Santa Rosa, October 24, 1876, *Ed. André 4283* (Herb. Kew., type). Near Cugambe(?), May 23, 1876, *André 3499* (K).

The species is a well-marked one because of the broad inflorescence with its very numerous large bracts.

Palicourea dorantha Wernh. Kew Bull. 1914: 69. 1914.

Type collected between Pitalito (Tolima) and Mocoa (Caquetá District), *Sprague 345*. Río Santa Rita, Caldas, in dense forest, 1,600-1,800 m., *Killip & Hazen 8989* (W, G, Y). Santiago, *Toro 734* (Y).

A small tree, sometimes 6 m. high, nearly glabrous; stipule sheath up to 1 cm. long, deciduous, the lobes 1-2 cm. long; leaves short-petiolate, thick, short-acuminate at the apex, acute at the base, many-veined, pilose beneath along the veins; panicles large and broad, pedunculate or sessile, dense, the branches spreading or ascending, glabrous, the bracts small, lanceolate to ovate, acute; calyx lobes rounded, imbricate, 2 mm. long; corolla blue, 2 cm. long, broad, densely tomentose, the lobes short, rounded.

Palicourea effusa, sp. nov.—Arbor 6-7.5 cm. alta, ramulis crassis, novellis acute quadrangularibus in sicco fuscis glabris, internodiis c. 3 cm. longis; stipulae in vaginam 2 mm. longam adpressam glabram connatae, vagina in lobos 4 remotos 2-3 mm. longos triangulares acutos desinente; folia opposita, petiolo 8-15 mm. longo glabro; lamina elliptico-ovalis vel late elliptica, 11.5-14.5 cm. longa, 6-8.5 cm. lata, acuta vel breviter acuminata, basi acuta vel obtusa, subcoriacea, marginata, supra lutescenti-viridis, glabra vel ad costam prominentem sparse hirtella, nervis prominulis, nervulis impressis, subtus pallidior, ubique subsparse hirtella, costa valida elevata, nervis lateralibus utroque latere c. 15, gracilibus, elevatis, pallidis, angulo lato adscendentibus, arcuatis, nervulis prominentibus pulchre reticulatis; inflorescentia sessilis late paniculata, basi trichotoma, laxa, multiflora, 20 cm. longa, ramis primariis suberectis, superioribus late adscendentibus, gracilibus, glabris vel sparse hirtellis; bracteae anguste triangulares, 1-2 mm. longae, acuminatae, glabrae, ciliolatae; flores pedicellati, pedicellis rectis glabris 1-4 mm. longis apice explanatis; hypanthium turbinatum 1-1.2 mm. longum glabrum; calyx 0.5 mm. longus profunde 5-lobus, lobis late ovatis acutis glabris; corolla alba extus glabra tubulosa 13 mm. longa, tubo gracili basi paullo ampliato, fauce 2.2 mm. lato, lobis oblongis obtusis 2 mm. longis.—Colombia: Edge of woods, eastern slope of Páramo del Hatico, between Toledo and Pamplona, Dept. Norte de Santander, alt. 2,200 m., March 12, 1927, *E. P. Killip & Albert C. Smith 20562* (U. S. Nat. Herb. No. 1,355,591, type; duplicate in Y).

Evidently this plant is related to *P. lineariflora* Wernh., but it differs from that species in the conspicuously pubescent leaves and short corolla. The dilation of the apex of the pedicel, under the hypanthium, also is a character worthy of mention. In the genus *Palicourea* the hypanthium usually is jointed with the pedicel, but the joint between the two is very inconspicuous.

Palicourea fastigiata HBK. Nov. Gen. & Sp. 3: 368. 1820. *P. riparia* Benth. in Hook. Journ. Bot. 3: 224. 1841.

Quindío to San Juan, *André K.1120* (F, Y). Buga, *André 2457* (Y). Norosi to Tiquisio, Bolívar, 150-600 m., *Curran 158* (W). La Paila, Cauca, *Holton 426* (K, P, Y). Without locality, *Triana 1641* (K). Widely distributed in tropical America.

A nearly glabrous shrub or small tree, sometimes 6 m. high, with a trunk 7.5 cm. in diameter; stipules 5 mm. long or less, bifid, the lobes broad, obtuse or acute; leaves short-petiolate, oblong-elliptic to ovate-oblong, medium-sized, thin, acuminate at the apex, usually acute at the base, glabrous; inflorescence cymose-corymbose, long-pedunculate, dense, many-flowered, the branches ascending or erect, usually puberulent, the bracts minute; flowers slender-pedicellate; calyx lobes minute, ovate or rounded; corolla yellow, glabrous, 8-10 mm. long, tubular; fruit 4-5 mm. long, purple-black.

Palicourea guianensis Aubl. Pl. Guian. 1: 173. *pl. 66*. 1775.

Don Amo, 750 m., *H. H. Smith 2084* (F, W, G, M, P, Y). Cuatro Esquinas, Cauca, 1,700 m., *Pennell & Killip 6322* (W). Cisneros, *Toro 1023* (Y). Highlands of Popayán, 1,600-2,000 m., *Lehmann B.T.515* (F, G, K, Y). Juntas, Cauca, 200-1,000 m., *Lehmann 5114* (F, K). Without locality, *Triana 1662* (K). Antioquía, *Jervise* (K). Widely distributed in tropical America.

A nearly glabrous shrub or small tree; stipules 8-10 mm. long, biparted, the lobes lanceolate or ovate, obtuse; leaves short-petiolate, large, thin, elliptic-oblong to ovate or elliptic, acuminate at the apex, acute to nearly rounded at the base, glabrous or nearly so; panicles large, dense, many-flowered, thyrsoid or pyramidal, the branches ascending or spreading, glabrous or puberulent, the bracts subulate, inconspicuous; flowers pedicellate; calyx lobes minute, deloid, acute or obtuse; corolla yellow or orange-red, 10-18 mm. long, usually densely furfuraceous-tomentose; fruit ovoid, 4-5 mm. long.

Palicourea heterantha Standl. Contr. U. S. Nat. Herb. 18: 141. 1916.

Headwaters of the Río López, Río Palo Basin, Cauca, at 2,500-3,000 m., *Pittier 1098* (W, type).

Young branches villous; stipule sheath loose, 5-7 mm. long, the lobes linear, as long as the sheath; leaves long-petiolate, elliptic or obovate-elliptic, 8-13 cm. long, 5-7 cm. wide, rounded at the apex and shortly produced, acute at the base, thick, pilose beneath along the veins; panicle pedunculate, thyrsoid, 5-6 cm. long, many-flowered, the branches spreading, pilose, the bracts lanceolate, 3-8 mm. long; calyx lobes ovate, obtuse; corolla ovoid-urceolate, 10-12 mm. long, 5-6 mm. wide below, glabrous.

Palicourea heterochroma Schum. & Krause, Bot. Jahrb. Engler 40: 335. 1908.

In open forest near Popayán, Cauca, 1,600-1,800 m., *Lehmann 2830* (W, type collection). Río Ortega, Cauca, 1,500-1,700 m., *Pennell & Killip 7250* (W, Y). Coconuco to Popayán, Cauca, 2,000-2,500 m., *Killip 6894* (W, G, Y). Río Pilatón, 1,500 m., *André 3712* (K, Y). Cuatro Esquinas, Cauca, 1,700 m., *Pennell & Killip 6345* (W). Río Nembi, *André 3431* (K). Barbacoas, *Triana 3151* (K).

A shrub or small tree, nearly glabrous; stipule sheath 7-8 mm. long, the lobes lance-subulate, of equal length; leaves petiolate, subcoriaceous, oblong to oval-obovate, large, acute or abruptly short-acuminate, at base acute or subobtuse, glabrous or nearly so; panicles pedunculate, usually about 12 cm. long and nearly as broad, the branches stout, spreading or ascending, glabrous or sparsely puberulent, the bracts large, lanceolate; flowers short-pedicellate; calyx 6-8 mm. long, the lobes lance-triangular, acute; corolla pink or purple, 2 cm. long, glabrous, the lobes acute.

Palicourea hypomalaca, sp. nov.—Ramuli crassiusculi subteretes in sicco fusco-olivacei, puberuli, internodiis 4.5-7 cm. longis; stipulae 5-7 mm. longae, breviter connatae, profunde lobatae, puberulae, lobis rotundatis; folia opposita, petiolo crasso 1-1.8 cm. longo dense puberulo vel hirtello; lamina subcoriacea, ovato-oblonga vel lanceolato-oblonga, 14-17 cm. longa, 5-6 cm. lata, longe angusteque acuminata, basi acuta, supra lutescens, minute puberula vel ad costam prominentem breviter hirtella, nervis prominulis, subtus dense velutino-pubescens, costa gracili elevata, nervis lateralibus utroque latere c. 17, gracilibus, prominentibus, angulo lato divergentibus, leviter arcuatis, prope marginem arcuato-conjunctis, nervis transversis prominulis; inflorescentia 9-10 cm. longe pedunculata, pyramidali-paniculata, laxe multiflora, 10-12 cm. longa, 8-9 cm. lata, ramulis primariis validis compressis vel angulatis adscendentibus dense hirtellis; bracteae anguste triangulares 1-3 mm. longae acuminatae puberulae; flores pedicellati, pedicellis crassis hirtellis 2-7 mm. longis; hypanthium oblongum 1-1.5 mm. longum puberulum; calyx 2 mm. longus, 0.5 mm. latus, subrotatus, brevissime obscureque lobatus, lobis late rotundatis extus puberulis; corolla tubulosa 14 mm. longa extus papillosa, tubo basi valde ampliato, superne sensim dilatato, fauce 4 mm. lato, lobis late ovatis obtusis fere 2 mm. longis; antherae inclusae lineares 3-3.5 mm. longae.—Colombia: Forests of Río Timbiquí, in 1899, *F. C. Lehmann 9003* (Gray Herb., type; duplicates in K and Y). Highlands of Popayán, 1,600-2,000 m., *Lehmann 7935* (W, K).

The plant is related to *P. guianensis* Aubl., but is well differentiated by the abundant soft pubescence of the narrower leaves.

Palicourea ionantha, sp. nov.—Arbor, ramulis gracilibus glabris, vetustioribus teretibus ochraceis vel griseis, internodiis elongatis; stipulae in vaginam 2-3.5 mm. longam glabram truncatam connatae, vagina in lobos 4 remotos triangulari-oblongos 1.5-2 mm. longos obtusos erectos desinente; folia opposita, petiolo gracili 3-10

mm. longo supra sulcato glabro; lamina lanceolato-oblonga vel elliptico-oblonga, 4-7 cm. longa, 1.2-3 cm. lata, sensim acuminata, apice ipso obtuso, basi acuta, subcoriacea, supra viridis, ad costam prominentem sparse adpresso-pilosula vel glabrata, nervis lateralibus manifestis sed vix elevatis, subtus pallidior, ad nervos minute et subadpresse pilosula, costa gracili elevata, nervis lateralibus utroque latere c. 13, gracilibus, prominentibus, angulo lato adscendentibus, valde arcuatis, marginem attingentibus, nervulis prominulis reticulatis; inflorescentia sessilis vel breviter pedunculata, dense multiflora, paniculata, basi trichotoma, 4-7 cm. longa, 2-5.5 cm. lata, ramis primariis adscendentibus sparse minuteque puberulis; bracteae lanceolatae vel subulatae 1-2.5 mm. longae glabrae ciliolatae; flores conferti, pedicellis crassis 1-2 mm. longis; hypanthium turbinatum 1.5 mm. longum glabrum; calyx 2-2.5 mm. longus profunde 5-lobus glaber, lobis late oblongis apice rotundatis vel obtusis interdum ciliolatis; corolla purpureo-violacea, tubulosa, 13-20 mm. longa, extus glabra, tubo gracili basi paullo ampliato, superne sensim dilatato, fauce 3-4 mm. lato, lobis oblongo-triangularibus obtusis 2-4 mm. longis; antherae lineares semiexsertae; fructus ovoideus 5-6 mm. longus glaber sulcatus, costis obtusis.—Colombia: In forest, El Peñón, southwest of Sibaté, Dept. Cundinamarca, alt. 2,800-2,900 m., October 13, 1917, *Francis W. Pennell 2424* (U. S. Nat. Herb. No. 1,042,291, type; duplicate in Y), *2394* (Y). In dense forest between Sibaté and Fusagasugá, Cundinamarca, 2,400-2,900 m., March, 1892, *Lehmann K.140* (K).

The sheet of *Pennell 2394* in the herbarium of the New York Botanical Garden bears an annotation to the effect that it was compared at Kew in September, 1920, and found to be *P. popayanensis* Benth., equaling "*Hartweg 1055.*" The type of *P. popayanensis*, however, is *Hartweg 1058*, and *No. 1055* is listed (Pl. Hartw. 192. 1845) as *Gonzalea pulverulenta* H. & B. The plant here described does not agree in various details with Bentham's description, and I can not believe that *P. ionantha* belongs to that species. The leaves of *P. popayanensis* are described as appreciably larger, and the corolla as orange-colored.

Palicourea justicioides, sp. nov.—Frutex vel arbor parva, ramulis gracilibus subteretibus vel obtuse tetragonis dense fulvo-pilosis vel glabratis, internodiis brevibus; stipulae in vaginam 4-6 mm. longam truncatam dense pilosam connatae, vagina in lobos 4 remotos lineari-subulatos 4-7 mm. longos erectos breviter pilosos desinente; folia opposita, petiolo gracili 1.3-2.5 cm. longo dense piloso; lamina anguste elliptico-oblonga vel ovato-oblonga, 13-17 cm. longa, 4-5.5 cm. lata, longe angusteque acuminata, basi acuta, crasse membranacea, supra viridis, undique breviter pilosa, nervis vix elevatis, subtus paullo pallidior, dense breviterque pilosa, costa crassiuscula elevata, nervis lateralibus utroque latere c. 15, angulo

lato adscendentibus, gracilibus, elevatis, arcuatis, marginem attingentibus, nervulis prominulis nervos parallele conjungentibus; inflorescentia 3-5.5 cm. longe pedunculata, trichotoma, anguste paniculata, c. 11 cm. longa et 6 cm. lata, interdum foliaceo-bracteata, ramulis adscendentibus dense pilosis; bracteae virides, infimis linearibus et 1.5 cm. longis, superioribus ovatis acutis 3-5 mm. longis dense pilosis; flores congesti vel subspicati sessiles; hypanthium 1.5-2 mm. longum densissime albido-pilosum; calyx campanulatus 4 mm. longus extus pilosus ad medium 5-lobus, lobis late triangularibus acutis; corolla infundibuliformis extus dense longipilosa 16-18 mm. longa, superne sensim dilatata, fauce 6 mm. lata, lobis oblongo-ovatis acutiusculis 2.5 mm. longis; stylus exsertus.—Colombia: Titiribí, June 30, 1928, *Rafael A. Toro 1198* (Herb. N. Y. Bot. Gard., type). Concordia, Antioquía, forest border, 1,800 m., *Kalbreyer 1519* (K). "Colombia," *Lobb 27* (K).—Ecuador: Andes, 1,800-2,100 m., *Pearce* (K).

This species does not appear to be closely related to any of those described previously from Colombia. It is distinguished particularly by the abundant pubescence, the large calyx of distinctive form, and the very broad corolla clothed with long shaggy pubescence.

Kalbreyer describes the plant as a shrub of 1.5-2 m., with light blue inflorescence and blue corolla.

Palicourea Kalbreyeri, sp. nov.—Frutex 2-2.5 m. altus, ramulis gracilibus subteretibus glabris viridibus, internodiis 3.5-6.5 cm. longis; stipulae persistentes, erectae, 9-11 mm. longae, glabrae, basi breviter connatae, apice bifidae, laciniis c. 6 mm. longis acutis ciliatis; folia opposita, petiolo 8-14 mm. longo valido glabro; lamina oblonga, anguste oblonga vel lanceolato-oblonga, 9-14 cm. longa, 3-4.5 cm. lata, subcoriacea, longiacuminata, acumine attenuato angusto, basi acuta, supra luteo-viridis, ad costam elevatam sparse pilosa vel fere glabra, nervis prominentibus, subtus fere concolor, ad costam elevatam et nervos sparse pilis longiusculis debilibus pallidis pilosa vel glabrata, nervis lateralibus utroque latere c. 15, gracilibus, prominentibus, angulo lato adscendentibus, valde arcuatis, in marginem desinentibus, nervulis prominulis arcte reticulatis, margine saepe revoluto; inflorescentia terminalis vel pseudo-terminalis, recurva, lutea, 5.5-7 cm. longe pedunculata, thyrsoideo-paniculata, laxe multiflora, 10-12 cm. longa, 7-8 cm. lata, pedunculo valido hince inde piloso, ramis oppositis gracilibus, angulo recto divaricatis vel interdum subreflexis, sparse pilosis, floribus subcongestis, sessilibus vel pedicellatis, pedicellis usque ad 2 mm. longis, bracteis linearibus vel subulatis attenuatis 2-6 mm. longis sparse puberulis vel glabratis; hypanthium obovoideum glabrum 0.6 mm. longum; calyx glaber 0.7 mm. longus 5-fidus, laciniis triangularibus acutis; corolla lutea 6 mm. longa, in alabastro apice late obtusa, extus glabra, tubo cylindrico, basi paullo ampliato, ore fere 2 mm.

lato.—Colombia: San José, Prov. Antioquía, in 1880, *Kalbreyer 1619* (Herb. Kew., type).

Noteworthy for the combination of narrow, nearly glabrous leaves, large lax panicles, and very small corollas.

Palicourea Killipii, sp. nov.—Arbor, ramulis gracilibus teretibus laevibus glabris in sicco fuscis vel olivaceis, vetustioribus obtuse tetragonis; stipulae in vaginam glabram 5-7 mm. longam truncatam apice ciliolatam connatae, vagina in lobos 4 remotos anguste lineares attenuatos erectos 5-7 mm. longos desinente; folia opposita, petiolo gracili 1-4 cm. longo glabro; lamina elliptico-oblonga vel anguste elliptica, rarius ovata, 11-32 cm. longa, 4-12 cm. lata, longiacuminata, basi acuta vel attenuata, crasse papyracea, supra glabra vel tantum ad costam puberula, costa prominente, nervis manifestis sed vix elevatis, utrinque rhaphidibus minutis pallidis conspersa, subtus paullo pallidior, secus nervos minute puberula vel glabrata, costa gracili elevata, nervis lateralibus utroque latere 17-25, angulo lato adscendentibus, gracilibus, prominentibus, valde arcuatis, marginem attingentibus, nervulis conspicuis prominulis reticulatis; inflorescentia purpurea thyrsoideo-paniculata, sessilis vel 2-5.5 cm. longe pedunculata, laxe multiflora, 7-13 cm. longa, 8-10 cm. lata, ramulis adscendentibus vel divaricatis glabris; bracteae lineares glabrae 7-12 mm. longae persistentes; flores pedicellati, pedicellis 5-18 mm. longis; hypanthium late cylindricum 2-2.5 mm. longum glabrum; calyx 5-partitus glaber, lobis linearibus 7-15 mm. longis, 1.5-2 mm. latis, attenuatis, glabris; corolla purpurea tubulosa extus glabra 22 mm. longa, 3-5 mm. lata, basi ampliata, lobis late triangularibus obtusis 2.5 mm. longis erectis; stylus inclusus; fructus globosus 5-6 mm. longus glaber profunde sulcatus, costis acutis.—Colombia: In forest, La Gallera, Micay Valley, Dept. El Cauca, alt. 1,400-1,500 m., June 29-30, 1922, *Ellsworth P. Killip 7694* (U. S. Nat. Herb. No. 1,140,620, type; duplicates in G and Y); alt. 1,900-2,000 m., *Killip 7933* (W, G, Y); alt. 2,000-2,200 m., *Killip 7945* (W).

A well-marked species, not closely related to any other. It is noteworthy for the large corolla and especially for the very long and narrow calyx lobes.

Palicourea Lehmannii (Schum.), comb. nov. *Rudgea Lehmannii* Schum. in E. & P. Nat. Pfl. 4^6: 116. 1891, nomen; Bot. Jahrb. Engler 40: 342. 1908.

Western cordillera of Cali, Cauca, 2,000 m., *Lehmann 2989* (W, type collection). In forest, La Cumbre, El Valle, 1,700-2,100 m., *Killip & Hazen 11124* (W, G, Y); at 1,800-2,200 m., *Killip 5583* (W, G, K, P, Y).

A small tree, the branchlets glabrous; stipule sheath 2 mm. long, the lobes ovate-triangular, obtuse, 2 mm. long; leaves short-petiolate, elliptic-oblong or lance-oblong, 11-19 cm. long, narrowly long-acuminate, at the base acute or obtuse, glabrous; inflorescence

sessile, trichotomous, broadly paniculate, laxly many-flowered, 11-16 cm. long, the branchlets glabrous, the flowers pedicellate; calyx lobes rounded or broadly ovate and obtuse; corolla purple, glabrous, the tube 3 cm. long, the lobes 4 mm. long, bearing at the apex a dorsal hornlike appendage 3-4 mm. long; fruit subglobose, 5-6 mm. long, glabrous.

Although referred by Schumann to the genus *Rudgea*, I see no reason for excluding this plant from *Palicourea*. The long appendages of the corolla lobes are very unusual in *Palicourea*, it is true, but they would be exceptional also in *Rudgea*, and the stipules are quite unlike those found in the latter genus.

Palicourea leuconeura, sp. nov.—Frutex vel arbor parva, ramulis gracilibus teretibus glabris lutescenti-viridibus glabris laevibus; stipulae persistentes in vaginam 2-2.5 mm. longam viridem glabram adpressam truncatam connatae, vagina in lobos 4 remotos triangulares vel oblongos acutos erectos desinente; folia opposita, petiolo gracili 5-18 mm. longo supra sulcato glabro; lamina lanceolato-oblonga, ovato-oblonga vel elliptico-oblonga, 6-16 cm. longa, 2-2.5 cm. lata, longe angusteque acuminata, basi acuta et saepe inaequalis, subcoriacea vel crasse papyracea, glabra, supra lutescenti-viridis, costa nervisque prominentibus, subtus pallidior, costa gracili elevata, nervis lateralibus utroque latere 12-15, angulo lato acutove adscendentibus, gracilibus, elevatis, pallidis, arcuatis, marginem attingentibus, nervulis prominulis eleganter reticulatis; inflorescentia sessilis vel 1.5-4 cm. longe pedunculata, late paniculata vel corymboso-paniculata, basi trichotoma, laxe vel dense multiflora, 4-7 cm. longa, 4-11 cm. lata, ramulis divaricatis vel adscendentibus, gracilibus, puberulis vel glabratis; bracteae anguste triangulares vel lineares, 1-4 mm. longae, inconspicuae, glabrae, ciliolatae; flores pedicellati, pedicellis 1-5 mm. longis gracilibus superne vix incrassatis; hypanthium late turbinatum 1-1.5 mm. longum glabrum; calyx 0.5 mm. longus, lobis minutis, late triangularibus vel ovatis, obtusis vel acutis; corolla alba vel viridescenti-alba, extus glabra vel minute puberula, tubuloso-infundibuliformis, 7 mm. longa, tubo basi ampliato, superne paullo dilatato, fauce 1.5-2 mm. lato, lobis oblongis obtusis 2 mm. longis; antherae inclusae; stylus interdum exsertus; fructus subglobosus glaber purpureo-niger 4-5 mm. longus sulcatus, costis obtusis.—Colombia: Mountain forest above Valparaíso, region of Santa Marta, alt. 1,500 m., May 27, 1899, *H. H. Smith 1822* (Herb. Field Mus. No. 138,670, type; duplicates in W, G, M, P, Y); at 1,350 m., *H. H. Smith 1827* (Y), *1823* (Y). California, Santander, 3,000 m., open woods, *Killip & Smith 16909* (W, Y). Above Suratá, Santander, dense forest, *Killip & Smith 16583* (W, Y). La Baja, Santander, in dense forest, 3,000 m., *Killip & Smith 18337* (W, Y); at 2,700 m., in thicket, *Killip & Smith 18327* (W, Y). Toledo, Norte de Santander, open hillside, 1,700-1,900 m., *Killip & Smith 20047* (W, Y), *20087* (W, Y). Wooded

banks of Río La Baja, Santander, 2,200 m., *Killip & Smith 18281* (W, Y). Ocaña, 1,800 m., *Schlim 664* (K).

This plant is related to the Venezuelan *P. apicata* HBK., differing from it in the much shorter stipules.

Palicourea libana, sp. nov.—Arbor, ramulis crassiusculis obtuse tetragonis, novellis dense tomentosis, vetustioribus ferrugineis glabratis; stipulae in vaginam 2.5-3 mm. longam tomentosam truncatam connatae, vagina in lobos 4 remotos lineari-subulatos erectos 2.5-3.5 mm. longos desinente; folia opposita, petiolo gracili 1 cm. longo dense hirtello; lamina elliptica vel elliptico-oblonga, c. 12 cm. longa et 5.5 cm. lata, apice abrupte breviterque acuminata, basi acuta et subobliqua, crasse membranacea, supra sublucida, glabra vel ad costam sparse puberula, nervis non elevatis, subtus pallidior, ubique dense molliterque pubescens, costa gracili elevata, nervis lateralibus utroque latere c. 12, angulo lato adscendentibus, gracilibus, arcuatis, prominulis, juxta marginem conjunctis, nervulis inconspicuis; inflorescentia 3-3.5 cm. longe pedunculata, pyramidali-paniculata, dense multiflora, basi trichotoma, 9-14 cm. longa, 7-10 cm. lata, ramulis adscendentibus tomentosis crassiusculis; bracteae ovatae vel lanceolatae, acuminatae, 2-4 mm. longae, extus tomentosae; flores conferti sessiles vel pedicellis crassis 1-3 mm. longis stipati; hypanthium late turbinatum 2 mm. longum dense tomentosum; calyx 1 mm. longus extus tomentosus, lobis brevibus rotundatis; corolla alba tubuloso-infundibuliformis 18 mm. longa extus dense tomentosa, tubo superne sensim dilatato, fauce 4 mm. lato, lobis oblongis acutis 2.5-3 mm. longis; fructus subglobosus 5 mm. longus sulcatus tomentosus, costis obtusis.—Colombia: Líbano, Dept. Tolima, in forest, alt. 1,100-1,300 m., December 26-29, 1917, *Francis W. Pennell 3434* (U. S. Nat. Herb. No. 1,042,825, type; duplicate in Y).

Related to *P. justicioides* Standl., but in that species the bracts are large and often foliaceous, the calyx is several times as large, and the corolla much broader.

Palicourea Lindenii, sp. nov.—Ramuli crassiusculi, teretes vel obtuse tetragoni, glabri, brunnescentes, internodiis 3-5.5 cm. longis; stipulae persistentes in vaginam 8 mm. longam amplam glabram truncatam connatae, vagina in lacinias 4 remotas lineares glabras obtusas 10-12 mm. longas desinente; folia opposita, petiolo crassiusculo 10-12 mm. longo glabro; lamina oblonga, 8-15 cm. longa, 3-6 cm. lata, acuta vel obtusa et abrupte breviterque acuminata, acumine triangulari acuto, basi acuta vel subobtusa et saepe inaequalis, subcoriacea, supra viridis, ad costam elevatam sparse pilosa, aliter glabra, nervis prominulis, subtus paullo pallidior, ad nervos pilis debilibus longiusculis sparse pilosa, costa gracili elevata, nervis lateralibus utroque latere c. 14, angulo lato adscendentibus, prominentibus, gracilibus, arcuatis, marginem attingentibus, nervulis

prominentibus arcte reticulatis, margine saepe anguste revoluto; inflorescentia terminalis sessilis vel 5.5 cm. longe pedunculata, late thyrsoideo-paniculata, dense multiflora, 8-10 cm. longa et aequilata, basi trichotoma, ramis validis divaricatis vel angulo lato adscendentibus saepe angulatis glabris, floribus plerumque pedicellatis, pedicellis crassis 2-3 mm. longis, bracteis oblongis vel lanceolatis 2-10 mm. longis obtusis vel acutis glabris; hypanthium glabrum late turbinatum 1-1.3 mm. longum; calyx 2-2.5 mm. longus glaber, laciniis ovalibus vel oblongo-ovatis obtusis inaequalibus; corolla fere 2 cm. longa, tubo cylindrico basi paullo ampliato superne vix dilatato ore 2.5 mm. lato, lobis ovato-oblongis suberectis obtusis 2 mm., longis.—Colombia: "New Granada," in 1842, *Linden 1079* (Herb. Kew., type).

The plant is marked by the very long stipule lobes. It is represented by two sheets in the Kew herbarium.

Palicourea lineariflora Wernh. Journ. Bot. 55: 280. 1917.

Llano de San Martín, 440 m., *Triana 1639* (K, type collection), *77* (K). Facatativá, Cundinamarca, 2,600 m., *Lehmann 2578* (F, W). Pradera, Cundinamarca, 2,600-3,000 m., *Lehmann 7516* (F, K). Usaquén, 2,400 m., *Apollinaire & Arthur 101* (W); *Ariste-Joseph B39* (W). Nemocón, *Ariste-Joseph B99* (W). Chapinero, Cundinamarca, 2,700 m., *Pennell 2041* (W, G, M, Y). Misiones, Cundinamarca, *Dawe 50* (W, K). Mountains near Bogotá, *Holton 422* (G, K, P, Y). Quebrada de la Vieja, *Ariste-Joseph A384* (W). Facatativá, *Ariste-Joseph A191* (F, W). Zocancipá, Cundinamarca, *Ariste-Joseph B50* (W). Boquerón de Bogotá, 2,750 m., *André 716* (K, Y). Mountains of Usaquén, in 1917, *Ariste-Joseph* (W). Tequendama, January, 1923, *Ariste-Joseph* (W). Without locality, *Ariste-Joseph B40* (W). Facatativá, 2,600 m., *Lehmann 2578* (K). Bogotá, *Turner* (K). Without locality, *Linden 1301* (K).

A glabrous shrub or small tree; stipules 5-6 mm. long, the lobes lanceolate, acute, shorter than the tube; leaves petiolate, subcoriaceous, elliptic, acute or obtuse at each end, 5-12 cm. long, 2.5-6.5 cm. wide; inflorescence pedunculate or sessile, corymbose, usually as broad as long, lax, many-flowered, the branches curved-ascending, slender, the bracts minute; flowers pedicellate; calyx minute, the lobes ovate, acutish; corolla slender, glabrous, yellowish or whitish, 1.5-2 cm. long or even longer; fruit subglobose, 5 mm. long.

Palicourea longifolia HBK. Nov. Gen. & Sp. 3: 369. 1820. *Psychotria longifolia* Spreng. Syst. Veg. 1: 745. 1825.

Type from Santa Ana, *Bonpland*.

Branches glabrous; stipules caducous; leaves opposite, petiolate, lance-oblong, acuminate at the apex, acute at the base, membranaceous, glabrous, paler beneath; inflorescence paniculate, sessile, 15-20 cm. long, the branches spreading, glabrous, the bracts subulate; flowers solitary, pedicellate; calyx glabrous; corolla glabrate.

If the stipules really are caducous, as described, the plant is scarcely a *Palicourea*, but perhaps rather a *Psychotria*.

Palicourea longistipulata (Muell. Arg.), comb. nov. *Psychotria longistipulata* Muell. Arg. in Mart. Fl. Bras. 6[6]: 248. 1881.

Type from San Carlos on the Río Negro, *Spruce 3697*.

Branchlets sparsely puberulent; stipules 12 mm. long, the lobes linear-subulate; leaves short-petiolate, broadly lanceolate, 6-18 cm. long, cuspidate, acute at the base, rigidly membranaceous, villosulous above along the veins, pubescent beneath; inflorescence corymbose, umbelliform, pedunculate, fulvous-pubescent; calyx shallowly 5-lobed, the lobes rounded-obtuse; corolla 8 mm. long, fulvous-villosulous; fruit oblong-ellipsoid, hispidulous, 5 mm. long.

Palicourea lugubris Schum. & Krause, Bot. Jahrb. Engler 40: 337. 1908.

Timbiquí, *Lehmann 9017* (F, G, K, Y), *B.T.755* (Y). Also in Ecuador.

A nearly glabrous shrub; stipules 7-8 mm. long, bifid nearly to the base, the lobes lance-oblong, acute; leaves short-petiolate, thin, blackish when dried, elliptic-oblong or oblong-lanceolate, 8-17 cm. long, 4-6 cm. wide, long-acuminate at the apex, cuneately acute at the base, glabrous; inflorescence pedunculate or sessile, cymose-corymbose, small, dense, the branches ascending, puberulent, the bracts linear; flowers short-pedicellate; calyx lobes linear-oblong, acute; corolla 8-10 mm. long, sparsely puberulent or glabrous; fruit 4 mm. long.

Palicourea lutulenta, sp. nov.—Frutex vel arbor 1-6-metralis, ramulis validis obtuse tetragonis vel subteretibus, junioribus dense villoso-tomentosis, tomento fulvo vel ochraceo, vetustioribus sordide ochraceis; stipulae in vaginam laxam 6-8 mm. longam et 5-8 mm. latam incrassatam primo dense villoso-tomentosam connatae, vagina truncata in lobos 4 lineares 4-5 mm. longos acutos desinente; folia opposita, petiolo crasso 1-2 cm. longo supra sulcato dense villoso-hispidulo; lamina oblongo-elliptica vel oblongo-ovalis, 8-15 cm. longa, 4-7.5 cm. lata, apice abrupte breviterque acuminata vel rarius obtusa, basi acuta vel obtusa, subcoriacea, in sicco lutescens, distincte marginata, supra tantum ad costam villosula, subtus pilis fulvis nitidis undique molliter pilosula, costa valida elevata, nervis lateralibus utroque latere 11-13, prominentibus, angulo lato adscendentibus, valde arcuatis, marginem attingentibus, nervulis prominulis irregulariter reticulatis; panicula plerumque 1-3 cm. longe pedunculata, thyrsoideo-pyramidalis, 5-14 cm. longa, 6-7 cm. lata, dense multiflora, rhachi percurrente, ramulis primariis crassis, divaricatis vel adscendentibus, dense et sordide hirtellis; bracteae lanceolatae vel lineares, 2.5-15 mm. longae vel longiores, ciliatae et plerumque hirtellae, persistentes; flores sessiles vel pedi-

cellis brevibus crassis stipati; hypanthium turbinatum 2 mm. longum sparse vel dense pilis lutescentibus hirtellum; calyx 1-1.8 mm. longus 5-lobus, viridis vel lutescens, lobis inaequalibus, ovatis vel rotundato-ovatis, acutis vel obtusis, hirtellis vel tantum ciliatis; corolla tubulosa lutea vel viridescens 11 mm. longa, extus dense pilis luteis villosula vel glabrata, tubo crasso fauce fere 4 mm. lato, lobis oblongo-ovatis 2 mm. longis obtusis erectis; stylus inclusus; fructus globosus glaber 6-8 mm. longus profunde sulcatus, costis obtusis.—Colombia: Western slope of Páramo Rico, Dept. Santander, in woods, alt. 3,000-3,600 m., January 15-19, 1927, *E. P. Killip & Albert C. Smith 17209* (U. S. Nat. Herb. No. 1,352,841, type; duplicate in Y). Western slope of Páramo de las Puentes, above La Baja, Santander, 3,300 m., in oak forest, *Killip & Smith 18167* (W, Y). California, Santander, open hillside, 3,000 m., *Killip & Smith 16930* (W, Y). La Baja, Santander, in oak forest, 3,500 m., *Killip & Smith 18079* (W, Y). Quebrada de País, north of La Baja, Santander, 3,200 m., in dense forest, *Killip & Smith 18774* (W, Y). Las Vegas, Santander, in woods, 2,600-3,000 m., *Killip & Smith 16119* (W), *16139* (W).

This is a relative of *P. demissa* Standl., but it is easily distinguished from that species by the abundant pubescence of all parts of the plant.

Palicourea lyristipula Wernh. Journ. Bot. 55: 339. 1917.

Without locality, *Linden 1081* (K). This is one of the two collections cited in the original description, the other being *Triana 130*.

Branches quadrangular, densely pubescent; stipules 13 mm. long, the lobes lanceolate, acute, scarcely equaling the sheath; leaves petiolate, firm-chartaceous, obovate or elliptic, subacuminate, narrowed to the base, 9-17 cm. long, 5-8 cm. wide, pubescent beneath on the nerves; inflorescence thyrsoid-paniculate, 20 cm. long and 7 cm. broad, lax, many-flowered, the rachis glabrate, the bracts subsetaceous, small and inconspicuous; flowers mostly pedicellate; calyx lobes oblong-lanceolate, obtuse; corolla glabrous, the tube 12 mm. long, the lobes 2 mm. long, obtuse.

Palicourea macrobotrys (R. & P.) R. & S. Syst. Veg. 5: 194. 1819. *Psychotria macrobotrys* R. & P. Fl. Peruv. 2: 57. *pl. 203, f. a.* 1799.

Salento, Caldas, in forest, 2,100-2,500 m., *Pennell 8873* (W, G, Y). Antioquía, *Jervise* (K). Ranging to Bolivia and Brazil.

A shrub, the branches densely pubescent; stipule sheath 4 mm. long or less, truncate, the lobes subulate, usually longer than the sheath; leaves short-petiolate, lance-oblong or narrowly elliptic-oblong, thin, long-acuminate at the apex, acute at the base, finely soft-pubescent beneath over the whole surface; inflorescence thyrsoid, pedunculate or sessile, much elongate and narrow, spikelike,

the branches very short, the bracts linear, inconspicuous; flowers pedicellate; calyx minute, broadly ovate, acute; corolla yellow, tubular, about 1 cm. long, pubescent; fruit 3.5-4 mm. long.

Palicourea myriantha, sp. nov.—Frutex, ramulis crassis obtuse tetragonis minutissime puberulis vel glabratis in sicco fuscis; stipulae 12-17 mm. longae, breviter connatae, extus puberulae, fere ad medium bilobae, lobis ovato-oblongis apice obtusis vel rotundatis persistentibus; folia opposita, petiolo crasso 2.5-7.5 cm. longo supra sulcato puberulo vel glabrato; lamina crasse papyracea, elliptico-ovalis vel obovato-ovalis, 16-32 cm. longa, 8-19 cm. lata, apice rotundata vel obtusa et brevissime obtuseque protracta, basi acuta vel rotundata et abrupte contracta, supra viridis, glabra vel ad costam prominentem sparse hirtella, nervis manifestis sed vix prominentibus, subtus paullo pallidior, ubique molliter pubescens, costa valida elevata, nervis lateralibus utroque latere c. 20, gracilibus, prominentibus, angulo lato adscendentibus, arcuatis, prope marginem arcuato-conjunctis; inflorescentia 2-6.5 cm. longe pedunculata, pyramidali-paniculata vel thyrsoideo-paniculata, dense multiflora, 11-24 cm. longa, 5-19 cm. lata, ramulis primariis divaricatis validis dense puberulis; bracteae ovatae vel late oblongae, obtusae, 2-6 mm. longae, tomentellae; flores sparsi pedicellati, pedicellis 2-4 mm. longis hirtellis apice incrassatis; hypanthium late turbinatum 1.5 mm. longum sparse puberulum; calyx 1-1.5 mm. longus profunde 5-lobus, lobis ovatis acutis puberulis; corolla lutea tubulosa extus hirtella 10 mm. longa, tubo basi paullo ampliato, fauce 2 mm. lato, lobis oblongo-triangularibus acutis 1.5 mm. longis; stylus interdum exsertus; fructus immaturus globosus glabratus.—Colombia: In forest above Salento, Dept. Caldas, alt. 2,000-2,200 m., July 25-31, 1922, *Francis W. Pennell 8941* (U. S. Nat. Herb. No. 1,140,668, type; duplicates in G and Y). Quindío, in 1876, *André 2141* (K). Balsillas, Huila, along stream, *Rusby & Pennell 741* (W, G, M, Y). East of Neiva, Huila, in forest, *Rusby & Pennell 868* (W, Y).

The relationship of this species is with *P. lutulenta* Standl. in that the leaves usually are much smaller, and the stipules are very different.

Palicourea nitidella (Muell. Arg.), comb. nov. *Psychotria nitidella* Muell. Arg. in Mart. Fl. Bras. 6^6: 250. 1881.

Type from San Carlos on the Río Negro, *Spruce 3121.*

Stipules lanceolate, long-acuminate; leaves petiolate, ovate or elliptic, 7-13 cm. long, 2.5-5.5 cm. wide, acutely acuminate at the apex, acute at the base, glabrous, the veins 5-11 pairs; panicle compact-corymbiform, long-pedunculate, the bracts triangular; calyx obsoletely 5-dentate; corolla 14 mm. long, furfuraceous-tomentulose.

Palicourea nubigena, sp. nov.—Arbor, ramulis validis obtuse tetragonis densissime villoso-tomentosis, tomento ochraceo subad-

presso, internodiis 2.5-8 cm. longis; stipulae magnae fere liberae, late ovatae, 2-2.5 cm. longae, membranaceae, brunnescentes, extus tomentulosae, apice breviter bilobae, lobis acutis; folia opposita, petiolo crassiusculo 2.5-4 cm. longo dense villoso-tomentoso; lamina elliptica, obovato-elliptica vel elliptico-oblonga, 14-20 cm. longa, 5-9 cm. lata, apice longe et subabrupte acuminata, basi acuta, rigide herbacea, supra viridis glabra, nervis subimpressis, subtus pallidior, pilis brevibus patentibus ubique molliter hirtella, costa crassa elevata, nervis lateralibus utroque latere c. 18, gracilibus, prominentibus, angulo lato adscendentibus, valde arcuatis, marginem attingentibus, nervulis prominentibus laxe reticulatis; panicula sessilis, trichotoma, ovoideo-pyramidalis, 11 cm. longa, 9 cm. lata, dense multiflora, ramulis adscendentibus vel superioribus divaricatis, dense ochraceo-tomentosis; bracteae anguste oblongae, 6-10 mm. longae, obtusae, tenues, brunneae, extus adpresso-pilosulae, intus glabrae; flores conferti breviter pedicellati, pedicellis crassis hirtellis; hypanthium turbinatum 2 mm. longum hirtellum; calyx 2-3 mm. longus profunde 5-lobus, lobis triangulari-ovatis obtusis, extus sparse hirtellis; corolla alba extus dense villoso-tomentella 8-11 mm. longa, tubo crasso 3.5-4 mm. lato, lobis erectis oblongis obtusis, tubo paullo vel duplo brevioribus.—Colombia: In mossy forest, Cerro Tatama, Dept. Caldas, alt. 2,800-3,300 m., September 8-10, 1922, *Francis W. Pennell 10464* (U. S. Nat. Herb. No. 1,140,693, type).

In general appearance this somewhat resembles *P. lutulenta* Standl., but the very large stipules of *P. nubigena* are distinctive. They are much larger than in most species of the genus.

Palicourea obscurata (Muell. Arg.), comb. nov. *Psychotria obscurata* Muell. Arg. in Mart. Fl. Bras. 6[6]: 253. 1881.

Type from San Carlos on the Río Negro, *Spruce 3046*.

Branchlets glabrous; stipules triangular-ovate, 4 mm. long, obtuse; leaves short-petiolate, ovate, 9-16 cm. long, 4-7 cm. wide, cuspidate-acuminate, coriaceous-membranaceous, glabrous, the veins 9-11 pairs; panicle short-pedunculate, subglobose, 2 cm. long, the flowers minutely pulverulent-tomentulose; calyx obsoletely 5-denticulate; corolla 7 mm. long.

Palicourea orthoneura, sp. nov.—Ramuli crassi cortice laevi ochraceo obtecti, subteretes, glabri, internodiis brevibus vel elongatis; stipulae persistentes in vaginam 4 mm. longam glabram truncatam connatae, vagina in lobos 4 triangulari-oblongos obtusos 2-3 mm. longos desinente; folia opposita, petiolo crassiusculo 10-18 mm. longo glabro; lamina elliptico-oblonga, 9-12 cm. longa, 3.5-5 cm. lata, coriacea, utrinque glabra, supra viridis, lucida, costa et nervis elevatis, subtus luteo-viridis, costa gracili elevata, nervis lateralibus utroque latere 4-5, angulo acuto valde adscendentibus, gracilibus, elevatis, in marginem desinentibus, arcuatis, nervulis prominulis arcte reticulatis, margine subrevoluto; inflorescentia terminalis,

cymoso-paniculata, 4.5-7 cm. longa, 3.5-6 cm. lata, dense multiflora, 6-9 cm. longe pedunculata, ramis validis adscendentibus et saepe incurvis, glabris vel minutissime pulverulis, infimis oppositis vel subverticillatis, floribus sessilibus dense congestis, bracteis anguste triangularibus vel linearibus 1.5-3 mm. longis acutis; hypanthium obovoideum 0.6 mm. longum glabrum; calyx glaber 0.5 mm. longus, lobis brevissimis rotundato-ovatis, apice obtusis vel rotundatis; corolla 2.5-3 mm. longa extus glabra, tubo crassiusculo fauce barbato, lobis oblongis tubo aequilongis obtusis.—Colombia: Without definite locality, *Triana 1660* (Herb. Kew., type).

The species is easily recognized by the few strongly ascending nerves of the leaves and the very small flowers. It may be that it should be placed in *Psychotria* rather than in *Palicourea*.

Palicourea ovalis, sp. nov.—Frutex, ramulis crassiusculis subteretibus glabris, internodiis 2-9 cm. longis; stipulae in vaginam 3-6 mm. longam truncatam glabram vel margine ciliolatam connatae, vagina in lobos 4 c. 2 mm. longos triangulari-oblongos acutos desinente; folia opposita, petiolo 1-1.7 cm. longo supra late sulcato, subtus sparse adpresso-piloso; lamina ovalis vel elliptico-ovalis, 11.5-13.5 cm. longa, 5.5-7 cm. lata, apice rotundata et abrupte breviterque acuminata, acumine triangulari acuminato fere 1 cm. longo, basi rotundata vel obtusa et interdum abrupte contracta, subcoriacea, rigida, supra viridis, glabra, rhaphidibus brevibus pallidis conspicue conspersa, nervis nervulisque manifestis, subtus pallidior, tantum ad costam dense adpresso-pilosa, costa crassiuscula elevata, nervis lateralibus utroque latere c. 12, angulo recto adscendentibus, gracilibus, prominentibus, valde arcuatis, in marginem desinentibus, nervulis elevatis et pulchre reticulatis; panicula 3 cm. longe pedunculata, pyramidalis, laxa, pauciflora, 6-9 cm. longa, 8-12 cm. lata, ramulis divaricatis vel subreflexis glabris, rhachi percurrente; bracteae anguste triangulares, patulae, 2-4 mm. longae, acutae, ciliolatae; pedicelli validi 7-20 mm. longi glabri; hypanthium obovoideo-turbinatum 2.5 mm. longum glabrum; calyx 2 mm. longus, 4 mm. latus, breviter 5-lobus, lobis late ovato-triangularibus acutiusculis ciliolatis; corolla caerulea tubulosa (in alabastro), 3 cm. longa, crassa, extus glabra, intus supra basin dense villosa, lobis ovato-oblongis 5-6 mm. longis obtusis; antherae lineares 6 mm. longae; fructus immaturus globosus 6 mm. diam.—Colombia: In forest, La Cumbre, Dept. El Valle, alt. 1,800-2,100 m., *Francis W. Pennell 5711* (U. S. Nat. Herb. No. 1,141,913, type; duplicate in Y). Corazón(?), *André K.501* (K).

Here probably belongs *Killip & Smith 19143* from the southern slope of Mount San Martín, near Charta, Dept. Santander, alt. 2,300-2,500 m. (W, Y). No corollas are present on the specimens, but the collector's notes describe the corolla as "green proximally, brown-red distally, lobes green." The plant is said to be a "shrub" 4.5-6 m. high.

Palicourea ovalis is marked chiefly by the very large corolla and the oval leaves.

Palicourea paradisiaca, sp. nov.—Ramuli validi teretes olivacei glabri, internodiis 1.5-4.5 cm. longis; stipulae in vaginam 3-4 mm. longam glabram persistentem truncatam connatae, vagina in lobos 4 lineari-subulatos 2-3 mm. longos erectos desinente; folia opposita, petiolo valido 1.2-2 cm. longo supra sulcato glabro; lamina elliptico-oblonga, 14-16 cm. longa, 6-7.5 cm. lata, abrupte breviterque acuminata, acumine triangulari, basi acuta, subcoriacea, anguste marginata, supra viridis glabra, rhaphidibus pallidis brevibus crebris conspersa, costa prominente, nervis vix elevatis, subtus pallidior, ad nervos hirtella, ad costam gracilem elevatam hirsutula, nervis lateralibus utroque latere c. 14, angulo lato adscendentibus, gracilibus, prominentibus, arcuatis, in marginem desinentibus, nervulis prominentibus arcte reticulatis; inflorescentia paniculata, anguste pyramidalis vel thyrsoidea, 15. cm. longe pedunculata, 5-17 cm. longa, 3-18 cm. lata, pauci- vel multiflora, ramis validis adscendentibus glabris, bracteis c. 1 mm. longis triangularibus acutis, pedicellis crassis 2-8 mm. longis; hypanthium glabrum 1.5-2 mm. longum; calyx 1.5 mm. longus 5-lobus glaber, lobis late rotundatis minute ciliolatis; corolla 2 cm. longa extus glabra, tubo crasso, basi paullo ampliato et 4 mm. lato, fauce 5 mm. lato, lobis ovato-triangularibus obtusis 3 mm. longis; fructus globosus 7 mm. longus.—Colombia: Valparaíso, July 22, 1928, *Rafael A. Toro 1374* (Herb. N. Y. Bot. Gard., type).—Venezuela: Between Maracay and Choroni, also Colonia Tovar, 1,800 m., *Fendler 558* (K, Y). Colonia Tovar, *Fendler 558 β* (K,Y); at 1,700-2,300 m., in forest, *Pittier 10062* (Y).

Palicourea pasti Wernh. Journ. Bot. 55: 283. 1917.

Pasto, *Triana 1650* (K, type collection), *1658* (K); *André 888* (K). Without locality, *Triana 1640* (K). Pasto Volcano, 2,500-3,200 m., *Lehmann 6312* (K).

A shrub, glabrous throughout; stipules 4-8 mm. long, obscurely lobed at the apex; leaves petiolate, coriaceous, elliptic or obovate-lanceolate, scarcely acuminate, the apex obtuse, acute at the base, 4-12 cm. long, 2-5 cm. wide; inflorescence cymose-corymbose, sessile or short-pedunculate, up to 15 cm. broad, the bracts small, ovate or lanceolate; calyx lobes obtuse; corolla blue, the tube 6-7 mm. long, the 4 lobes 2 mm. long, concave, pubescent within.

Palicourea Pennellii, sp. nov.—Arbor, ramulis crassis obtuse tetragonis ferrugineis vel fuscis, novellis sparse hirtellis; stipulae in vaginam truncatam incrassatam 2-4 mm. longam glabram connatae, vagina in lobos 4 remotos lanceolatos 5-6 mm. longos subulato-acuminatos desinente; folia opposita, petiolo crassiusculo 5-9 mm. longo hirtello; lamina coriacea, sublucida, elliptica vel oblongo-elliptica, 4-6.5 cm. longa, 1.5-3.8 cm. lata, abrupte breviterque acuminata, apice obtuso, basi acuta, anguste marginata, supra viridis glabra, costa prominente, nervis manifestis prominulis,

subtus paullo pallidior, secus nervos sparse minuteque hirtella, costa crassiuscula elevata, nervis lateralibus utroque latere c. 16, angulo lato adscendentibus, prominentibus, gracilibus, brunnescentibus, valde arcuatis, marginem attingentibus, nervulis manifestis eleganter reticulatis; inflorescentia lutea, sessilis vel ad 4.5 cm. longe pedunculata, paniculata vel subcorymbosa, dense multiflora, 4.5-7 cm. longa, 5-7 cm. lata, ramulis oppositis vel subfastigiatis, adscendentibus vel suberectis, validis, ferrugineis, minutissime hirtellis; bracteae lineares vel subulatae 2-9 mm. longae attenuatae glabrae; flores sessiles vel pedicellati, pedicellis crassis 1-2 mm. longis; hypanthium late turbinatum 1 mm. longum glabrum; calyx 1-1.5 mm. longus profunde 5-lobus, lobis ovatis obtusis pallidis glabris; corolla lutea extus glabra infundibuliformis, basi paullo ampliata, superne sensim dilatata, fauce 3 mm. lata, lobis late ovatis obtusis fere 2 mm. longis; fructus subglobosus glaber 5 mm. longus, costis obtusis.—Colombia: Mount Santa Ana, Dept. El Cauca, alt. 2,700-3,000 m., June 29-30, 1922, *Francis W. Pennell 7476* (U. S. Nat. Herb. No. 1,140,616, type; duplicates in G and Y).

An isolated species, somewhat suggesting a *Viburnum* in general appearance.

Palicourea perquadrangularis Wernh. Journ. Bot. 55: 341. 1917.

Without locality, *Linden 1087* (K). Río Santa Rita, Caldas, 1,700-1,900 m., *Killip & Hazen 9028* (W, G, Y). Antizales, Bolívar, 1,500-1,800 m., *Pennell 4444* (Y). Mesa de los Santos, Santander, 1,500 m., *Killip & Smith 15286* (W). San Bernardino, Caldas, 1,500-2,000 m., *Pennell & Hazen 10157* (W). Antioquía, *Jervise* (K). Also in Venezuela.

A shrub or small tree, nearly glabrous, the branches quadrangular; stipule sheath 5-10 mm. long, truncate, biaristate, the aristae subulate, about as long as the sheath; leaves short-petiolate, thick and firm, elliptic or oblong-elliptic, 12-25 cm. long, 5-11 cm. wide, abruptly short-acuminate, acute at the base, many-veined, hirsute-pilosulous beneath along the costa; panicle pedunculate or sessile, thyrsoid, up to 30 cm. long, narrow, the short branches divaricate, glabrous; flowers usually long-pedicellate; calyx lobes ovate, obtuse; corolla glabrous, 7 mm. long; fruit 5 mm. long.

The corolla is variously described as "pale yellow," "light blue," and "blue," but all the specimens appear to be conspecific. The flower colors reported for some of the species of *Palicourea* are very confusing and inconsistent, and it seems certain that in many cases they have been noted carelessly, perhaps from memory, or by persons who had no definite idea of the definition of color terms, a class to which many of our botanists seem to belong. The size of the plant, likewise, seems to have been reported too often from memory alone.

Palicourea popayanensis Benth. Pl. Hartw. 193. 1845.

Type from forests near Popayán, *Hartweg 1058*. Hills of Miraflores, above Palmira, Cauca, 1,200-1,600 m., *Pittier 876* (W, Y). Cuatro Esquinas, Cauca, 1,700 m., *Pennell & Killip 6335* (W, G, Y). Miraflores, El Valle, 1,800-2,100 m., *Killip 6140* (W). Pavas, El Valle, in forest, 1,700-2,100 m., *Killip 11661* (W, G, Y). Río Quindío above Armenia, Caldas, 1,400-1,600 m., edge of forest, *Pennell, Killip & Hazen 8725* (W, G, Y). Balsillas, Huila, in forest, 2,100 m., *Rusby & Pennell 803* (Y). Titiribi, *Toro 399* (Y). Angelopolis, *Toro 268* (Y).

A shrub or small tree, glabrous or nearly so; stipule sheath 3-4 mm. long, truncate, the lobes linear, usually shorter than the sheath, acute or obtuse; leaves short-petiolate, elliptic-oblong, 7-17 cm. long, firm, acuminate, acute to nearly rounded at the base, glabrous or sparsely pilose beneath along the costa; panicle pedunculate or sessile, thyrsoid-pyramidal, open, large, many-flowered, glabrous, the branches ascending or spreading, the bracts minute; flowers pedicellate; calyx lobes minute, acute or obtuse; corolla orange or yellow, glabrous, 10-13 mm. long, tubular, stout; fruit 5-6 mm. long.

It is not certain that the specimens listed really represent *P. popayanensis*. *Pennell 2394*, here referred to *P. ionantha*, was compared by Britton in 1920 with the type of *P. popayanensis* at Kew, and is said by him to be the same as *Hartweg "1055"* (1058[?]). The Pennell specimen, however, does not agree with the original description of *P. popayanensis*, while the specimens here cited do agree with it in most details.

Palicourea populifolia Rusby, Descr. N. Sp. S. Amer. Pl. 141. 1920.

Las Nubes, 1,500 m., *H. H. Smith 1833* (Y, type; F, W, M, P). Santa Marta, *Purdie* (K). Near San Sebastián, January, 1844, *Purdie* (K).

A tree 6 m. high, the branches glabrous, terete; stipules green, bifid, the lobes linear, acute, 4-6 mm. long; petioles slender, 5-7 cm. long; leaf blades oblong-ovate to broadly ovate, acute at the apex, rounded and unequal at the base, puberulent beneath along the costa; panicle pedunculate, pyramidal, lax, many-flowered, the branches minutely puberulent, the bractlets minute; flowers pedicellate; fruit globose, 3-4 mm. long; corolla 7 mm. long, glabrous.

Palicourea psittacorum, sp. nov.—Frutex, ramulis validis subteretibus dense villosulo-hirtellis, internodiis 1.5-2 cm. longis; stipulae in vaginam 2.5-3 mm. longam extus dense puberulam connatae, vagina in lobos 4 fere contiguos oblongos obtusos 3-4 mm. longos glabratos ciliolatos erectos desinente; folia opposita, petiolo crasso 3-5 mm. longo dense hirtello; lamina coriacea, elliptico-oblonga, 3-5.5 cm. longa, 1-2 cm. lata, longe angusteque acuminata,

acumine obtuso, basi acuta, marginata, supra luteo-viridis, ad costam hirtella, costa nervisque subimpressis, subtus cinerea, ad nervos dense albido-hispidula, costa crassiuscula elevata, nervis lateralibus utroque latere c. 12, angulo lato vel angusto adscendentibus, prominentibus, arcuatis, marginem attingentibus, nervulis prominulis reticulatis; inflorescentia 1.5-2.5 cm. longe pedunculata, interdum basi foliaco-bracteata, thyrsoideo-paniculata, dense multiflora, 3-4 cm. longa, 2-3 cm. lata, ramulis brevibus divaricatis dense hispidulis; bracteae ut videtur virides, lineares vel lanceolato-lineares, plerumque 5-7 mm. longae, ciliatae, numerosae, conspicuae; flores conferti sessiles vel brevissime pedicellati; hypanthium turbinatum 1.5 mm. longum puberulum; calyx 1.5-2 mm. longus profunde 5-lobus, lobis puberulis vel glabratis, ciliolatis, ovalibus vel ovatis, apice obtusis vel rotundatis; corolla viridi-lutea tubulosa 8-10 mm. longa extus puberula, tubo basi paullo ampliato, superne paullo dilatato, fauce 2 mm. lato, lobis c. 1 mm. longis; stylus interdum breviter exsertus.—Colombia: La Lora to summit, new Quindío Trail, Dept. Tolima, alt. 3,280 m., August 14, 1922, *Ellsworth P. Killip 9782* (U. S. Nat. Herb. No. 1,140,688, type; duplicate in Y).

Closely related to *P. angustifolia* HBK., but with different stipules.

Palicourea Purdiei, sp. nov.—Ramuli crassiusculi subteretes fusci lucidi, internodiis 2-3 cm. longis; stipulae in vaginam glabram 2 mm. longam connatae, bifidae, lobis anguste triangularibus 2 mm. longis acutis rigidis persistentibus erectis; folia opposita, petiolo valido 7-10 mm. longo supra sulcato glabro; lamina elliptico-oblonga, 5.5-9 cm. longa, 2-3.5 cm. lata, acuta vel subobtusa, apice ipso saepius obtuso, basi cuneatim angustata vel abrupte contracta, coriacea, marginata, glabra, sublucida, supra viridis, costa nervisque prominentibus, nervulis subimpressis, subtus pallidior, in sicco brunnescens, costa gracili elevata, nervis lateralibus utroque latere c. 15, gracilibus, prominentibus, angulo lato adscendentibus, arcuatis, marginem attingentibus, nervulis vix prominulis reticulatis; inflorescentia 2 cm. longe pedunculata, paniculata, corymbiformis, laxe multiflora, c. 6 cm. longa et lata, basi trichotoma, ramis adscendentibus gracilibus minutissime puberulis; bracteae 1-1.5 mm. longae subulatae; flores pedicellati, pedicellis 2-7 mm. longis puberulis; hypanthium late turbinatum 1.5 mm. longum minutissime puberulum; calyx 0.5 mm. longus, lobis minutis ovatis acutis; corolla tubuloso-infundibuliformis 12 mm. longa extus minute puberula, tubo gracili basi paullo ampliato, superne sensim dilatato, fauce 2.2 mm. lato, lobis brevibus obtusis.—Colombia: Santa Marta, *Purdie* (Gray Herb., type). Mountains of San Sebastián, Nevada de Santa Marta, July, 1844, *Purdie* (K; probably the same collection as the type). Mountains of the Nevada, alt. 3,000 m., June, 1844, *Purdie* (K).

Palicourea lineariflora Wernh. is the nearest ally of *P. Purdiei,* but in the former the corolla is longer, and the stipules are decidedly different.

Palicourea pyramidalis, sp. nov.—Ramuli validi obtuse tetragone in sicco fusci glabri, internodiis elongatis; stipulae breviter connatae, adpressae, 8-12 mm. longae, glabrae, profunde bilobae, lobis ovato-oblongis obtusis persistentibus; folia opposita, petiolo gracili 0.8-2 cm. longo glabro; lamina subcoriacea, elliptico-ovalis vel obovato-ovalis, 8-15 cm. longa, 4-7 cm. lata, abrupte et brevissime acuminata, acumine obtuso, basi acuta vel subobtusa, glabra, in sicco fusca, subconcolor, costa gracili utrinque elevata, nervis lateralibus utroque latere c. 21, gracilibus, utrinque prominentibus, angulo lato adscendentibus, arcuatis, marginem attingentibus, nervulis subtus prominulis laxe reticulatis; inflorescentia sessilis vel 4-5 cm. longe pedunculata, late pyramidali-paniculata, laxe multiflora, 14-18 cm. longa, 13-20 cm. lata, ramulis primariis divaricatis gracilibus glabris; bracteae lineari-subulatae 2-7 mm. longae persistentes glabrae; flores sparsi, pedicellis gracilibus 3-9 mm. longis apice paullo incrassatis; hypanthium turbinatum glabrum 1.2 mm. longum; calyx glaber 1 mm. longus profunde 5-lobus, lobis late ovatis acutis; corolla tubulosa 8-10 mm. longa extus glabra, tubo basi ampliato, superne vix dilatato, fauce 2.5 mm. lato, lobis oblongo-ovatis acutiusculis 1.5 mm. longis.—Colombia(?); Without locality, *F. C. Lehmann B.T.1203* (Gray Herb., type; duplicates in K and Y), *B.T.1252* (K, Y).

A relative of the Venezuelan *P. petiolaris* HBK., in which, however, the stipules are shorter, the petioles much longer, and the inflorescence puberulent.

Palicourea rigida HBK. Nov. Gen. & Sp. 3: 370. 1820.

Santa Marta, *Purdie* (Y). Widely distributed in South America.

A nearly glabrous shrub with thick stout branches; stipule lobes short, acuminate; leaves subsessile, coriaceous, stiff, elliptic to ovate or obovate, large, obtuse to short-acuminate at the apex, rounded to acutish at the base; inflorescence long-pedunculate, ovoid, large, dense, many-flowered, the branches minutely puberulent or glabrate, the bracts lance-subulate; calyx lobes nearly obsolete; corolla yellow, 12-14 mm. long, furfuraceous-puberulent, the lobes very short; fruit black, 5-6 mm. long.

Palicourea salmonea Schum. & Krause, Bot. Jahrb. Engler 30: 333. 1908.

Highlands of Popayán, 1,500-2,000 m., *Lehmann 5112* (F, W, Y, type collection). *Lehmann 7929* also is reported by the authors of the species. San Martín de Loba, *Curran 194* (W).

A slender glabrous shrub; stipules 4 mm. long, the lobes subulate; leaves short-petioled, subcoriaceous, oblong or elliptic-oblong, 6-15 cm. long, 2-5.5 cm. wide, long-acuminate at the apex, acute at the base; panicle pedunculate or sessile, pyramidal, 7-12 cm. long, lax, many-flowered, the branches slender, usually ascending, the bracts minute; flowers on long slender pedicels; calyx lobes ovate, acute,

scarcely 1 mm. long; corolla tubular, salmon-colored, glabrous, slender, 10-14 mm. long.

This species is closely related to *P. crocea.*

Palicourea semirasa, sp. nov.—Arbor parva interdum 6 m. alta, ramulis gracilibus teretibus laevibus in sicco fuscis, internodiis brevibus vel elongatis; stipulae 3-5 mm. longae, persistentes, brevissime connatae, fere ad basin bifidae, erectae, lobis ovatis vel late oblongis apice obtusis vel rotundatis glabris ciliolatis; folia opposita, petiolo 0.7-1.5 cm. longo crassiusculo supra sulcato glabro; lamina oblongo-lanceolata, ovato-oblonga vel elliptico-ovata, 9-15 cm. longa, 3-5 cm. lata, apice longe et plerumque sensim acuminata, basi acuta, crasse papyracea, glabra, supra in sicco luteo-viridis, costa nervisque prominentibus, subtus fusco-viridis, costa gracili elevata, nervis lateralibus utroque latere c. 11, angulo lato adscendentibus, arcuatis, prope marginem arcuato-conjunctis, nervulis obscuris; inflorescentia late thyrsoidea 6-12 cm. longa, 6-11 cm. lata, laxe multiflora, 2-5 cm. longe pedunculata, ramulis adscendentibus gracilibus, ut pedunculus minute puberulis vel glabratis; bracteae minutissimae; flores pedicellati, pedicellis 3-10 mm. longis; hypanthium obovoideo-turbinatum glabrum; calyx 0.5 mm. longus glaber, dentibus minutis late rotundatis; corolla lutea 11-13 mm. longa tubulosa, solum ad apicem papilloso-puberula, tubo 2.5-3 mm. lato, lobis triangulari-ovatis obtusis 1.5 mm. longis; stylus breviter exsertus; fructus subglobosus glaber 5-6 mm. longus sulcatus, costis obtusis.—Colombia: In woods, Mesa de los Santos, Dept. Santander, alt. 1,500 m., December 11-15, 1926, *E. P. Killip & Albert C. Smith 15154* (U. S. Nat. Herb. No. 1,351,085, type), *15069* (W), *15275* (W, Y).

This is a relative of the widely distributed *P. guianensis* Aubl. That species differs in having much broader leaves, larger stipules, and a corolla which is furfuraceous-tomentose throughout.

Palicourea speciosa HBK. Nov. Gen. & Sp. 3: 368. 1820. *Psychotria speciosa* Spreng. Syst. Veg. 1: 746. 1825.

Type from Santa Ana, *Bonpland.*

Branches glabrous; leaves opposite, petiolate, oblong, acuminate at the apex, acute at the base, 17-20 cm. long, 4 cm. wide, reticulate-veined, scaberulous and shining on both surfaces; inflorescence paniculate, pedunculate, 7.5 cm. long, the branches spreading, pubescent-hirtous, the bracts minute, subulate; flowers solitary, pedicellate; corolla 12 mm. long, pubescent.

Palicourea Toroi, sp. nov.—Ramuli crassi obtuse tetragoni, novellis sparse hirsutis cito glabratis, internodiis 4-6.5 cm. longis; stipulae in vaginam adpressam 10-12 mm. longam truncatam glabram connatae, vagina in lobos 4 approximatos tenues lanceolatos 13-17 mm. longos, 4-6 mm. latos, acuminatos, apice ipse obtuso, desinente;

folia opposita, petiolo crasso 1.5-3 cm. longo sparse hirtello vel glabrato; lamina crasse papyracea, ovalis vel oblongo-elliptica, 17-26 cm. longa, 8-11.5 cm. lata, apice abrupte et brevissime acuminata, acumine acuto, basi obtusa vel acuta, supra viridis, ad costam sparse hirtella, nervis lateralibus conspicuis, subtus vix pallidor, ad nervos hirtella, costa crassa elevata, nervis lateralibus utroque latere c. 21, gracilibus, prominentibus, angulo fere recto adscendentibus, arcuatis, marginem attingentibus, nervulis prominulis reticulatis; inflorescentia 8 cm. longe pedunculata, pyramidali-paniculata, c. 10 cm. longa et aequilata, laxe multiflora, ramis divaricatis sparse hirtellis vel fere glabris; bracteae lineari-lanceolatae vel ovato-oblongae, 4-8 mm. longae, subulato-acuminatae, persistentes, glabrae; pedicelli crassi 2-8 mm. longi glabri; hypanthium cylindrico-turbinatum 2 mm. longum glabrum; calyx 4 mm. longus fere ad basin 5-fidus, lobis ovalibus, late oblongis vel obovato-ovalibus, glabris, apice obtusis vel late rotundatis; corolla aperta non visa, in alabastro glabra.—Colombia: Dauro, April 6, 1928, *Rafael A. Toro 1133* (Herb. N. Y. Bot. Gard., type).

Palicourea Toroi is related to *P. heterochroma* Schum. & Krause, but in that the stipule lobes are lance-subulate, the leaves nearly glabrous, and the calyx lobes lance-triangular. It is a pleasure to name this plant in honor of its collector, who has obtained in Colombia such a large series of interesting Rubiaceae.

Palicourea triphylla DC. Prodr. 4: 526. 1830. *Psychotria triphylla* Muell. Arg. in Mart. Fl. Bras. 6[6]: 233. *pl. 32.* 1881.

Don Amo, 450 m., in damp forest, *H. H. Smith 2798* (Y). Puerto Wilches, Santander, 100 m., edge of woods, *Killip & Smith 14917* (W, Y). Widely distributed in tropical America.

A shrub 1-2.5 m. high, the branches terete, glabrous or nearly so; stipule lobes linear, 6-10 mm. long; leaves ternate, short-petiolate, oblong or obovate-oblong, long-acuminate at the apex, usually acute at the base, puberulent, especially beneath, or finally glabrate; inflorescence long-pedunculate, narrowly pyramidal-paniculate, dense, many-flowered, short-pilose, the bracts linear-subulate; flowers pedicellate, the pedicels and calyx red; calyx teeth obtuse; corolla yellow, furfuraceous-puberulent, 12-15 mm. long; fruit black.

Palicourea vagans Wernh. Journ. Bot. 55: 281. 1917.

Mount Quindío, at 2,340 m., *Triana 131* (K, type collection). La Baja, Santander, 3,500 m., in oak forest, *Killip & Smith 18088* (W, Y). Páramo de las Puentes, above La Baja, Santander, 3,300 m., *Killip & Smith 18165* (W, Y). Pamplona, in forest, 2,400 m., *Schlim 1074* (K). Ocaña, in forest, 2,400 m., *Schlim 442* (K); at 1,800 m., *Schlim 21* (K). Ocaña to Pamplona, 3,000 m., *Kalbreyer 762* (K). Around Ocaña and Granada, 2,550 m., *Kalbreyer 482* (K). Also in Venezuela.

A shrub 2-4.5 m. high, the young branches densely pubescent; stipule sheath 4-6 mm. long, the lobes linear, very short; leaves opposite, short-petiolate, elliptic or elliptic-oblong, 4-7 cm. long, 2-3 cm. wide, short-acuminate at the apex, acute at the base, thick, pubescent beneath on the nerves; inflorescence cymose, rather few-flowered, usually sessile, terminal and in the uppermost axils, dense, the bracts inconspicuous; flowers pedicellate; calyx lobes deltoid, minute; corolla 16-18 mm. long, purple, furfuraceous-puberulent or glabrate, the tube 5 mm. wide at the mouth; fruit 5-6 mm. long.

Palicourea vaginata Benth. Pl. Hartw. 193. 1845.

Type from Andes near Bogotá, *Hartweg*. Cerro Santa Ana, Cauca, 2,700-3,000 m., *Pennell 7462* (W, G, Y). Chiquinquirá, July, 1909, *Ariste-Joseph* (W). Region of Bogotá, *Ariste-Joseph 549* (W); in 1919, *Ariste-Joseph* (W). El Peñón, Cundinamarca, in forest, 2,800 m., *Pennell 2407* (W, G, Y). La Calera, *Ariste-Joseph A836* (W). Chapinero, Cundinamarca, 2,800 m., *Pennell 2009* (Y). Charta, Santander, 2,600 m., in forest, *Killip & Smith 18860* (W, Y), *19004* (W, Y), *19007* (W, Y). Páramo del Hatico, Santander, 2,200-2,800 m., *Killip & Smith 20563* (W, Y), *20592* (W, Y), *20609* (W, Y). Pica-Pica Valley, Norte de Santander, in woods, 2,100-2,400 m., *Killip & Smith 20409* (W, Y), *20400* (W, Y). Culaga Valley, Norte de Santander, 2,300 m., *Killip & Smith 20332* (W, Y). Pamplona to Toledo, Norte de Santander, 2,800-3,000 m., *Killip & Smith 19848* (W), *19841* (W, Y). Murillo, Tolima, 2,200-2,600 m., *Pennell 3156* (Y). Boquerón de Bogotá, 2,750 m., *André 716* (K). Hills above Bogotá, 2,700 m., *Tracey 121* (K).

A shrub or small tree, sometimes 6 m. high; stipules connate into a sheath, membranaceous at the apex, shallowly bilobate, the lobes obtuse, glabrous; leaves thick, petiolate, oval-elliptic to elliptic-oblong, short-acuminate, narrowed at the base, shining above, soft-pubescent beneath or nearly glabrous, 7.5-14 cm. long; panicles short, dense, usually sessile, broad, the branches spreading or ascending, puberulent, many-flowered, the bracts minute; flowers pedicellate; corolla yellow, glabrous or puberulent, 8-12 mm. long; fruit purple or black, 6-8 mm. long.

67. RUDGEA Salisb.

Rudgea colombiana, sp. nov.—Ramuli crassiusculi subteretes sordide ochracei, novellis minute et sparse puberulis vel glabratis, internodiis elongatis; stipulae deciduae (perfectae non visae), c. 3 mm. longae, rotundatae, glabrae, apice aculeoligerae; folia opposita, petiolo valido vel gracili 1-3 cm. longo glabro supra sulcato; lamina tenuiter coriacea, elliptica, oblonga-elliptica vel obovato-elliptica, 12-24 cm. longa, 5-10.5 cm. lata, apice obtusa vel subrotundata et abrupte cuspidato-acuminata, acumine 1-2.5 cm. longo longi-attenuato, basin versus sensim cuneato-angustata, utrinque glabra, supra sublucida, costa non elevata, nervis prominulis, subtus paullo pallidior, brunnescens, costa crassiuscula elevata, nervis lateralibus

utroque latere c. 11, gracilibus, prominentibus, arcuatis, angulo lato adscendentibus, prope marginem arcuato-conjunctis, nervulis prominulis laxe reticulatis; inflorescentia terminalis sessilis vel 8 mm. longe pedunculata, paniculata, multiramosa, c. 8 cm. longa et 5 cm. lata, dense multiflora, ramis oppositis divaricatis validis sparse et minute puberulis vel fere glabris, bracteis ovatis plerumque 1-2 mm. longis inconspicuis, floribus ad apices ramulorum dense glomeratis sessilibus; hypanthium vix 1 mm. longum glabrum; calyx 0.5 mm. longus glaber minute 5-dentatus, dentibus triangularibus acutiusculis; corolla extus glabra in alabastro obtusa, 3 mm. longa, fauce dense barbata, lobis oblongis obtusis tubo aequilongis; filamenta exserta glabra, antheris oblongis vix 1 mm. longis.—Colombia: Timbiquí, September, 1903, *F. C. Lehmann B.T.758* (Herb. Kew., type; duplicate in herb. N. Y. Bot. Gard.).

The generic position of the plant is not altogether certain.

Rudgea fimbriata (Benth.) Standl. in Standl. & Cald. Lista Pl. Salv. 274. 1920. *Psychotria fimbriata* Benth. in Hook. Journ. Bot. 3: 226. 1841. *R. micrantha* Muell. Arg. Flora 59: 454. 1876.

Without locality, *Triana 1692* (K), *1721* (K). Ranging to Bolivia, Brazil, and Central America.

A glabrous shrub; stipules triangular-ovate, incised-laciniate; leaves subsessile, broadly elliptic to elliptic-oblong, 8-15 cm. long, acuminate at the apex, obtuse at the base; flowers sessile, cymose-paniculate, the panicles small, broad, many-flowered; calyx minutely 5-dentate; corolla 5-7 mm. long, the lobes longer than the tube; fruit ellipsoid, 5-8 mm. long.

Rudgea fissistipula Muell. Arg. Flora 59: 449, 460. 1876.

Type from San Carlos on the Río Negro, *Spruce 3683*.

Branchlets minutely puberulent; stipules 19-22 mm. long, obovate, cleft to below the middle into numerous subulate lobes; leaves short-petiolate, ovate, 25-32 cm. long, cuspidate, abruptly contracted at the base, glabrous; panicles short-pedunculate, dense, small; calyx lobes ovate-triangular, acuminate, ciliolate; corolla 6-7 cm. long, papillose.

Rudgea insolita, sp. nov.—Ramuli validi subteretes fusci dense pilosuli, internodiis elongatis; stipulae ovato-triangulares, dense pilosulae, apice breviter aculeolato-ciliolatae; folia opposita, petiolo crasso 1-2 cm. longo dense pilosulo; lamina subcoriacea, ovalis vel late elliptica, 11-15.5 cm. longa, 6-9 cm. lata, acuta, basi late rotundata, lucida, ciliata, supra ad costam pilosula, nervis vix elevatis, nervulis prominulis, subtus vix pallidior, secus costam sparse pilosula, costa gracili elevata, nervis lateralibus utroque latere c. 10, gracilibus, prominentibus, angulo lato adscendentibus, prope marginem conjunctis, nervulis prominulis arcte reticulatis; inflorescentia terminalis 2 cm. longe pedunculata, cymoso-corym-

bosa, 6 cm. longa et lata, dense multiflora, trichotoma, ramis primariis crassis 1-1.5 cm. longis dense pilosulis, floribus sessilibus ad apices ramorum dense congestis; bracteae plerumque oblongo-lineares et 3-5 mm. longae; hypanthium dense hirsutum; calyx 5-partitus, laciniis oblongis recurvis 3-5 mm. longis obtusis sparse hispidulis; corolla hypocrateriformis extus dense hispidula, tubo gracili 2.3 cm. longo superne vix dilatato, fauce 3 mm. lato, lobis 5 oblongis vel lineari-oblongis 7-9 mm. longis obtusis apice cucullatis.—Colombia: Bogotá, *Purdie* (Gray Herb., type; duplicate in K).

In general appearance the plant is similar to *R. ovalifolia* Salisb., of the Guianas.

Rudgea Killipii, sp. nov.—Arbor gracilis 3.5-6 m. alta omnino glabra, ramulis gracilibus subteretibus olivaceis, internodiis elongatis; stipulae 2 mm. longae truncatae, apice breviter subulato-laciniatae; folia opposita, petiolo crasso 2-3 mm. longo; lamina elliptico-oblonga, ovali-elliptica vel ovato-elliptica, 5.5-10 cm. longa, 2.5-6 cm. lata, acuta vel subacuta, basi obtusa vel rotundata, subcoriacea, marginata, supra viridis, costa nervisque prominulis, lucida, subtus pallidior, costa crassa elevata, nervis lateralibus utroque latere c. 9, gracillimis, prominulis, angulo acuto adscendentibus, subarcuatis, remote a margine laxe conjunctis, nervulis prominulis reticulatis; inflorescentia terminalis 3 cm. longe pedunculata, cymosa, trichotoma, c. 4.5 cm. longa et 5.5 cm. lata, laxe pauciflora, ramis suberectis, floribus sessilibus vel breviter pedicellatis aggregatis; bracteae minutae; hypanthium turbinatum 2-2.5 mm. longum; calyx campanulatus 2 mm. longus truncatus interdum irregulariter fissus; corolla alba extus glabra, tubo 7 mm. longo superne paullo dilatato, lobis 4 oblongis apice cucullatis 5 mm. longis.—Colombia: In woods, Mesa de los Santos, Dept. Santander, alt. 1,500 m., December 11-15, 1926. *E. P. Killip & Albert C. Smith 15246* (U. S. Nat. Herb. No. 1,351,157, type; duplicate in Y).

Rudgea Kunthii, nom. nov.—*Psychotria calycina* HBK. Nov. Gen. & Sp. 3: 356. 1820, non *Rudgea calycina* Benth. 1850.

Type locality given doubtfully as New Granada, *Bonpland.* Antizales, Bolívar, 1,500-1,800 m., in forest, *Pennell 4454* (Y).

A shrub or small tree; stipules oblong or oval, obtuse, rounded at the apex and subulate-laciniate; leaves short-petiolate, lanceolate or oblong, very long-acuminate, acute at the base, thin, glabrous; inflorescence corymbiform, pedunculate, trichotomous, few-flowered, glabrous, the flowers pedicellate; calyx spathaceous, 4 mm. long, split on one side, minutely 5-denticulate; corolla white, the tube 5-6 mm. long, the lobes narrowly oblong, longer than the tube.

Rudgea marginata, sp. nov.—Frutex 1.5-3.5 m. altus omnino glaber, ramulis validis subteretibus, vetustioribus ochraceis rimosis, internodiis brevibus vel elongatis; stipulae c. 2 mm. longae, crassae,

multilobatae, lobis subulatis incrassatis; folia opposita, petiolo crasso 3-5 mm. longo; lamina coriacea, oblanceolato-oblonga, oblongo-obovata vel elliptico-ovalis, 6-11.5 cm. longa, 2.5-7 cm. lata, apice obtusa vel rotundata, apiculata, basin versus saepius angustata, basi ipsa rotundata vel obtusa, flavo-viridis, opaca, marginata, costa nervisque supra prominentibus, costa subtus elevata gracili, nervis lateralibus utroque latere c. 11, gracillimis, prominulis, angulo angusto vel lato adscendentibus, leviter arcuatis, juxta marginem in nervum collectivum conjunctis, nervulis vix prominulis inconspicue reticulatis; inflorescentia 3.5-7 cm. longe pedunculata, cymoso-paniculata, 2.5-4.5 cm. longa, 3-5 cm. lata, dense multiflora, trichotoma vel basi verticillatim ramosa, ramis crassis angulatis, floribus confertis sessilibus; bracteae late triangulares c. 1 mm. longae; hypanthium late turbinatum c. 0.8 mm. longum; calyx 1 mm. longus undulatus; corolla infundibuliformis extus sparse et minutissime puberula, tubo crasso 3.5 mm. longo, fauce barbato, lobis oblongis obtusis 2-2.5 mm. longis; antherae semiexsertae; stylus exsertus; fructus subglobosus laevis 4 mm. longus.—Colombia: Along borders of dry forest and in thickets, near Masinga, alt. 75 m., August and November, 1898, *H. H. Smith 314* (Herb. Field Mus. No. 137,376, type; duplicates in W, M, P, S, Y). Ibagué, *Goudot* (K). Without locality, *Triana 1687* (K).

Rudgea Woronovii, sp. nov.—Ramuli crassi stipulis omnino occulti, internodiis brevibus; stipulae magnae persistentes, 3-4 cm. longae, glabratae, profunde multilaciniatae, laciniis inaequalibus linearibus vel fere subulatis rigidis erectis; folia magna, breviter petiolata, opposita, petiolo c. 2 cm. longo glabro; lamina membranacea, oblongo-obovata, c. 30 cm. longa et 12.5 cm. lata, apice abrupte et brevissime acuminata, basin versus longe cuneato-attenuata, glabra, supra laete viridis, costa nervisque prominentibus, subtus pallida, costa gracili elevata, nervis lateralibus utroque latere c. 22, gracilibus, angulo lato adscendentibus, arcuatis, in marginem desinentibus, nervulis prominulis eleganter reticulatis; inflorescentia terminalis thyrsoideo-paniculata, longissime pedunculata, pedunculo gracili erecto 16 cm. longo glabro; panicula 8 cm. longa et 3 cm. lata, laxe multiflora, ramulis alternis adscendentibus gracilibus minutissime sparseque puberulis vel fere glabris, floribus 1-2 mm. longe pedicellatis, pedicellis apice incrassatis, bracteis minutis subulatis; fructus subglobosus leviter bisulcatus glaber 3-3.5 mm. longus, basi et apice rotundatus, pyrenis facie ventrali profunde sulcatis.—Colombia: Territorio de Caquetá, in sylvis circa Ketuchá, Río Orteguaza, August 20, 1926, *G. Woronow 6064* (Herb. Bot. Gard., Leningrad, type).

The plant has the general aspect of a *Palicourea*, but the form of the stipules seems to necessitate its reference to *Rudgea*. Probably it is related to *R. fissistipula* Muell. Arg., but the leaves of that species are different in outline, and the inflorescence is altogether different.

68. CORYNULA Hook. f.

Corynula longiflora, sp. nov.—Herba perennis repens suffruticosa epiphytica, ramulis elongatis gracillimis vix 1 mm. crassis ochraceis dense pilis brevibus patentibus albidis pilosulis, internodiis brevibus; stipulae persistentes vix 0.5 mm. longae, truncatae vel apiculatae, incrassatae et cum petiolis connatae, integrae; folia fere sessilia, interdum 1.5 mm. longe petiolata, opposita; lamina crassiuscula, elliptica vel late ovata, 3-12 mm. longa, 2-6 mm. lata, obtusa vel subacuta, basi obtusa vel rotundata, enervia, utrinque densissime pilis brevissimis albidis patentibus vel subadpressis induta; flores terminales subsessiles solitarii; hypanthium oblongum 2 mm. longum albido-pilosum; calyx 5-partitus, laciniis filiformibus 5-6 mm. longis pilosulis; corolla viridis extus sparse, ad lobos densius, pilosula, tubo gracillimo 15 mm. longo, basi 0.5 mm. lato, superne paullo dilatato, fauce 1.5 mm. lato, lobis 5 anguste oblongis obtusis 3-4 mm. longis patentibus intus glabris, in alabastro valvatis; antherae exsertae lineari-oblongae 1.2 mm. longae; ovarium 2-loculare, ovulis in loculis solitariis erectis.—Colombia: Around Ocaña, alt. 1,350 m., in 1878, *Kalbreyer 645* (Herb. Kew., type).

"Half shrub rooting on a tree, with long rooting branches; flowers velvety green, outside lighter green; leaves soft-velvety." The generic position of this curious little plant is somewhat uncertain, and it may be referable to some other genus, but it has not been possible with the rather unsatisfactory material available to make a better disposition of it. The typical and only other species of the genus inhabits the mountains of Ecuador.

69. NERTERA Banks & Soland.

Nertera depressa Banks & Soland.; Gaertn. Fruct. 1: 124. *pl. 26*. 1788.

La Baja, Santander, 2,700-3,500 m., *Killip & Smith 18030* (W). Pica-Pica Valley above Tapatá, 2,100-2,400 m., *Killip & Smith 20236* (W). Cerro Tatamá, 3,400-3,700 m., *Pennell 10580* (W). Mount San Vicente, near Charta, 2,500-2,700 m., *Killip & Smith 18992* (W, Y). Páramo del Hatico, 2,900 m., *Killip & Smith 20651* (W, Y). Boquerón de Bogotá, 2,800 m., *André 774* (F). Alto de Cruz Grande, *André 774* (F). Bogotá, *Holton 431* (P). Widely distributed in the mountains of South and Central America.

A slender creeping herb with small leaves and with bright red, fleshy fruits.

70. ERNODEA Sw.

Ernodea littoralis Sw. Prodr. Veg. Ind. Occ. 29. 1788.

Cartagena, November, 1857, *Schott* (F). Ranging to the West Indies and Central America.

A seashore shrub 0.5-1.5 m. high; leaves oblong to elliptic, nearly sessile, acute, 2-3.5 cm. long, glabrous or nearly so; flowers small,

white or pink, sessile in the leaf axils; fruit a yellow drupe 4-6 mm. long.

71. MITRACARPUS Zucc.

Mitracarpus frigidus (Willd.) Schum. in Mart. Fl. Bras. 6[6]: 81. 1888. *Spermacoce frigida* Willd. ex R. & S. Syst. Veg. 3: 531. 1818.

East of Neiva, Huila, 800-1,000 m., *Rusby & Pennell 416* (W, G, M, Y). Also in Venezuela, Brazil, and the Guianas.

A perennial herb, the stems puberulent or hispidulous; leaves lanceolate, pubescent; corolla white, much longer than the calyx.

Mitracarpus hirtus (L.) DC. Prodr. 4: 572. 1830. *Spermacoce hirta* L. Sp. Pl. ed. 2. 148. 1762. *S. diffusa* Willd. ex R. & S. Syst. Veg. 3: 531. 1818.

Bonda, 45 m., *H. H. Smith 85* (F, W, G, M, P, S, Y). Masinga, 75 m., *H. H. Smith* (F, Y). Natagaima, Huila, 400 m., *Rusby & Pennell 1190* (Y). Without locality, *Triana 1623* (K). Widely distributed as a weed in tropical America.

An erect, usually much-branched annual, hispidulous or glabrate; leaves lanceolate to ovate-oblong, acute, scabrous or villous; flowers in dense axillary clusters; corolla white, not exceeding the calyx.

The plant is a variable one, and it may be that with more ample material, to show the range of variation, it will be possible to recognize more than a single species among the specimens now referred to it.

72. PERAMA Aubl.

Perama plantaginea (HBK.) Hook. f. ex Schum. in Mart. Fl. Bras. 6[6]: 88. 1888. *Buchia plantaginea* HBK. Nov. Gen. & Sp. 2: 270. *pl. 132.* 1817.

Type from Javita, on the Orinoco, Venezuela, *Bonpland.*

A branched suberect herb, the stems glabrate; leaves opposite, short-petiolate, oblong, subacuminate, narrowed to the base, 5-nerved, up to 7 cm. long, 2 cm. wide, lanuginous-pilose above, lanate beneath; flowers in very dense, short spikes arranged at the end of a long peduncle; corolla small, white, pilose; fruit dry, 3-celled, glabrous.

73. RICHARDIA L.

Richardia scabra L. Sp. Pl. 330. 1753. *Richardsonia scabra* St. Hil. Pl. Us. Bras. vii. *pl. 8.* 1824.

Cuamo to Río Saldaña, Tolima, 400-450 m., *Pennell & Rusby 206* (W). Santa Marta, 750 m., *H. H. Smith 1793* (F, W, P). Ibagué, 1,300 m., *André 2006* (F). La Paila, *Holton 419* (P). Guanabanal,

El Valle, in marsh, 1,000 m., *Killip 6219* (W). Fredonia, *Toro 1181* (Y). Without locality, *Lehmann B.T.533* (Y). Altamira, Tolima, 600-1,300 m., *Lehmann 8731* (Y). Quebrada de Angeles, Huila, 450-600 m., *Rusby & Pennell 297* (Y). Widely distributed, usually as a weed, in tropical America.

A pilose or hispid, usually prostrate, annual; leaves oblong or lanceolate, petiolate; flowers small, white, in dense clusters at the ends of the branches; fruit of 3 carpels.

74. DIODIA L.

Diodia hyssopifolia (Willd.) C. & S. Linnaea 3: 350. 1828. *Spermacoce hyssopifolia* Willd. ex R. & S. Syst. Veg. 3: 532. 1819.

Coastal thicket, Buenaventura, El Valle, *Killip 11696* (W, G, Y). Buenaventura, *André 257* (K). Also in Brazil and the Guianas.

An erect perennial herb; leaves linear-lanceolate, 2-6 cm. long, acuminate, plane, glabrous; flowers sessile in the leaf axils; fruit ellipsoid, puberulent at the apex or glabrate.

Diodia maritima Thonn. in Schum. & Thonn. Beskr. Guin. Pl. 75. 1827.

Santa Marta, on seashore, *H. H. Smith 1792* (F, W, G, P, Y). Widely distributed in tropical America and in western Africa.

A prostrate herbaceous perennial; leaves oblong, acute or obtuse, glabrous, 2-3 cm. long, coriaceous; flowers white, axillary, solitary, sessile; fruit glabrous, the cocci obscurely 3-carinate dorsally.

Diodia rigida (Willd.) C. & S. Linnaea 3: 341. 1828. *Spermacoce rigida* Willd. ex R. & S. Syst. Veg. 3: 531. 1818.

Quebrada de los Angeles to Río Cabrera, Huila, 450-550 m., *Pennell 353* (F, W, G, M, Y). Guataqui, *André K.1125* (K, Y). Natagaima, Huila, 450-550 m., *Rusby & Pennell 1145* (Y). East of Neiva, Huila, 600-900 m., *Rusby & Pennell 1076* (Y). Without locality, *Moritz* (W, P). Mesa de los Santos, Santander, 1,500 m., *Killip & Smith 15231* (W, Y). Near Lake Sapatoza, Magdalena Valley, *Allen 133* (K). Piedras, *André K.1124* (K). Fusagasugá, *André K.1126* (K). Usually in grassland. Widely distributed in tropical America.

An erect or ascending, annual or perennial herb; leaves linear-lanceolate, 2-4 cm. long, scabrous or hispidulous; flowers lavender, axillary, sessile, usually solitary; fruit hispidulous or glabrate.

Diodia rogaguana Rusby, Mem. N. Y. Bot. Gard. 7: 380. 1927.

Near Lake Sapatoza, Magdalena Valley, in water, *Allen 327* (K). Also in Bolivia.

An herb 30-60 cm. high; leaves lanceolate to oblanceolate, 1.5-2.5 cm. long, 5-12 mm. wide, obtuse or acutish, gray-hispid; flowers white, axillary, sessile, the clusters several- or many-flowered.

Diodia setigera DC. Prodr. 4: 563. 1830.

Reported by Schumann (in Mart. Fl. Bras. 6[6]: 21. 1888) from Ocaña, *Schlim 242*. Also in Brazil.

A prostrate or ascending, perennial herb; leaves ovate, acute, 1-1.5 cm. long, aculeolate-serrate, pilose beneath along the costa; flowers axillary, sessile; fruit obovoid, glabrate, the cocci 3-carinate dorsally.

Diodia teres Walt. Fl. Carol. 87. 1788.

Bonda, *H. H. Smith 2628* (F, W, M, P, S, Y), *324* (F, W, G, M, P, Y). Bonda and Masinga, 60-300 m., *H. H. Smith 1783* (F, W, G, M, P, Y). Jiracasaca, 750 m., *H. H. Smith 1782* (Y). Six miles south of Mamatoca, 150 m., *H. H. Smith 1781* (Y). Without locality, *Moritz 1593* (W, P). Masinga, 150 m., *H. H. Smith 82* (F, W, G, M, P, Y). Santa Marta, *Purdie* (G). Growing in open places, usually grassland. Ranging northward to the United States.

An erect or ascending annual; leaves linear or linear-lanceolate, scaberulous; flowers white or lavender, axillary, sessile; fruit minutely and densely appressed-pubescent, the cocci nearly smooth dorsally.

75. HEMIDIODIA Schum.

Hemidiodia ocimifolia (Willd.) Schum. in Mart. Fl. Bras. 6[6]: 29. 1888. *Spermacoce ocimifolia* Willd. ex R. & S. Syst. Veg. 3: 530. 1818.

Iruandó Falls, *Schott 5* (F). Paime, *Ariste-Joseph A724* (W). Santa Marta, 600 m., *H. H. Smith 1796* (F, W, P). La Trinidad, Líbano, Tolima, 1,100-1,300 m., *Pennell 3317* (W). Corazón, *André K.1123* (K). Widely distributed in tropical America.

A large perennial herb; leaves lanceolate, attenuate at the base, 3-5 cm. long, puberulent or glabrate; flowers clustered in the leaf axils, sessile, white.

This is a common weed of the tropical American lowlands.

76. EMMEORRHIZA Pohl

Emmeorrhiza umbellata (Spreng.) Schum. in Mart. Fl. Bras. 6[6]: 408. 1889. *Borreria umbellata* Spreng. Neue Entd. 2: 144. 1821. *Endlichera umbellata* Schum. in Mart. Fl. Bras. 6[6]: 38. *pl. 74*. 1888.

Santa Marta, 300 m., *H. H. Smith 80* (F). Chinácota, Norte de Santander, 1,400 m., *Killip & Smith 20828* (W). Between Pamplonita and Chinácota, 1,300-1,800 m., *Killip & Smith 20762* (W). East of Neiva, Huila, 1,800-2,300 m., *Rusby & Pennell 571* (W, Y). El Convenio, Tolima, gravelly hillside, 700-900 m., *Pennell 3508* (W), *3510* (W). Also in Brazil and southward to Bolivia.

A suffrutescent vine, pubescent or nearly glabrous; leaves oblong-lanceolate to elliptic, 5-10 cm. long; flowers small, white, umbellate, the umbels panicled.

The plant is easy to recognize because of its umbellate flowers.

77. SPERMACOCE L.

Spermacoce glabra Michx. Fl. Bor. Amer. 1: 82. 1803.

Near Mamatoca, 30 m., *H. H. Smith 2082* (F, W, M, P, Y). La Manuelita, Cauca, 1,100-1,300 m., *Pittier 813* (W, Y). Natagaima, Huila, 400 m., *Rusby & Pennell 1189* (Y). Widely distributed in tropical America.

Plants probably annual, glabrous; leaves lanceolate to elliptic; flowers white, sessile in the leaf axils; fruit glabrous.

Spermacoce tenuior L. Sp. Pl. 102. 1753.

Medellín, *Toro 325* (W). Usiacuri, 250 m., *Bro. Elias 273* (W). Cartagena, *Bro. Heriberto 272* (W); *Schott 7* (F). La Popa, near Cartagena, 50-175 m., *Killip & Smith 14063* (W, Y). Torrecilla, near Turbaco, 150-300 m., *Killip & Smith 14390* (W, Y). Ciénaga, *H. H. Smith 322* (F, W, G, M, P, Y). Bonda, 30 m., *H. H. Smith 84* (Y). Honda, Tolima, 300 m., *Pennell 3611a* (Y). Turbaco, *Bro. Heriberto 419* (W). A widely distributed weed of tropical America.

An erect annual, nearly glabrous; flowers white or purplish pink; fruit pubescent.

Called "lappa vermelha" in Brazil.

78. BORRERIA Mey.

Borreria anthospermoides DC. Prodr. 4: 550. 1830.

Type from Bogotá. Río de Arzobispo, near Bogotá, 2,800 m., *Pennell 2123* (F, W, G, M, Y). Near Bogotá, 2,800 m., *MacDowell* (W); *Ariste-Joseph A373* (W). Montserrate, *Niemeyer 121* (W). San Cristóbal, *Niemeyer 163* (W). Above Bogotá, 2,700 m., *Rusby & Pennell 1260* (W, Y), *1297* (Y). Southeast of Bogotá, 2,800 m., *André 1000* (K, Y). Facatativá, 2,600 m., *André 637* (K, Y). Region of Bogotá, *Ariste-Joseph* (W). Río San Francisco, above Bogotá, 2,700 m., *Pennell 1934* (W, Y). San Francisco, Bogotá, 2,780 m., September, 1909, *Ariste-Joseph* (W). Boquerón de Bogotá, 2,800 m., *André 728* (K). Hills, Bogotá, *Weir 193* (K). Bogotá, *Holton 417* (Y). Growing on brushy slopes or in rocky places.

A perennial herb or a low shrub, glabrous or nearly so; leaves linear or lanceolate, small; flower heads terminal and solitary or in small corymbs; calyx lobes 4, linear-lanceolate, acute; corolla white or pinkish.

Borreria bogotensis (HBK.), comb. nov. *Spermacoce bogotensis* HBK. Nov. Gen. & Sp. 3: 345. 1819. *Diodia bogotensis* C. & S. Linnaea 3: 347. 1828.

Type collected near Bogotá, *Bonpland.* Between El Charquita and Tequendama, *Niemeyer 95* (W). Las Vegas, Santander, 2,600-3,000 m., *Killip & Smith 16003* (W, Y).

A perennial herb with long, trailing and rooting stems, glabrous or nearly so; leaves oblong-lanceolate, small, the margins serrulate;

flowers in dense, chiefly terminal heads; calyx lobes 4, lanceolate; corolla pink and white or white.

Called "chichipaca."

Borreria capitata (R. & P.) DC. Prodr. 4: 545. 1830. *Spermacoce capitata* R. & P. Fl. Peruv. 1: 61. *pl. 91, f. b.* 1798. *S. ferruginea* St. Hil. Pl. Usu. Bras. *pl. 13.* 1824. *B. ferruginea* DC. Prodr. 4: 547. 1830.

Cacagualito, 480 m., *H. H. Smith 1784* (F, W, G, Y). Orocné, Río Meta, *Lehmann 8818* (F). Chapa, Popayán, 1,300-1,800 m., *Lehmann 2848* (W). Villavicencio, 450 m., *Pennell 1448* (W, G, Y). Melgar, Cundinamarca, 900-1,300 m., *Pennell 2855* (W, G, Y). Icononzo, Cundinamarca, 1,000-1,200 m., *Pennell 2907* (W, G, Y). California, Santander, 2,200 m., *Killip & Smith 16856* (W, Y). Mesa de los Santos, Santander, 1,500 m., *Killip & Smith 15243* (W, Y). Ocaña, 1,050-1,800 m., *Schlim 24* (Y), *147* (Y). In marshy meadows and on open grassy slopes. Widely distributed in South America.

An erect perennial herb, densely pubescent; leaves linear to lanceolate or oblong, sessile or nearly so; flowers white, in dense, chiefly terminal heads; calyx lobes 4, subulate; corolla 2-5 mm. long; fruit puberulent at the apex.

Borreria chartensis Standl., sp. nov.—Herba ut videtur perennis, caulibus gracilibus, elongatis, procumbentibus, usque ad 60 cm. longis et ultra, subteretibus, viridibus, glabris, internodiis foliis longioribus; vagina stipularis 3-5 mm. longa, brunnescens, puberula vel glabrata, setis pluribus 6-10 mm. longis glabris onusta; folia basi in petiolum brevem contracta, ovata vel oblongo-lanceolata, 2-4 cm. longa, 0.6-1.7 cm. lata, acuta vel acuminata, basi acuta vel obtusa, membranacea, supra viridia, prope marginem scaberula, ad nervos subimpressos saepe puberula, subtus pallidiora, ad nervos scaberula, nervis lateralibus utroque latere 4, angulo acutissimo adscendentibus, elevatis, margine plana vel anguste revoluta; inflorescentiae terminales et ex foliis superioribus axillares, sessiles, dense multiflorae, terminalibus foliis involucralibus plerumque 4 magnis fulcratis; hypanthium oblongum apice puberulum; sepala 4, fere ad basin libera, lineari-oblonga, attenuato-acuminata, 2-2.5 mm. longa, viridia, glabra, ciliolata; corolla alba, infundibuliformis, 6 mm. longa, extus glabra, ad ⅓ in lacinias ovatas obtusas intus villosas divisa; antherae exsertae; stigma capitatum; capsula oblongo-obovoidea 3.5 mm. longa apice puberula.—Colombia: Vicinity of Charta, Dept. Santander, alt. 2,000-2,600 m., on open hillside, February 1-11, 1927, *E. P. Killip & Albert C. Smith 19207* (U. S. Nat. Herb. No. 1,354,495, type; duplicate in Y), *18863* (W, Y). Without locality, *Triana 102* (K).

In general appearance this plant is much like *B. laevis* (Lam.) Griseb., but that differs in having a minute calyx and much smaller corolla.

Borreria densiflora DC. Prodr. 4: 542. 1830. *Spermacoce spinosa* Sw. Obs. Bot. 45. 1791, non Jacq. 1760. *B. spinosa* C. & S. Linnaea 3: 340. 1828, excl. syn.

Bonda, 60 m., *H. H. Smith 1790* (F, G, W, P, Y). Cartagena, *Schott 6* (F); *Bro. Heriberto 174* (W, Y). Turbaco, *Bro. Heriberto 431* (W), *493* (W, G); *Killip & Smith 14172* (W, Y). La Popa, near Cartagena, 50-175 m., *Killip & Smith 14056* (W, Y). Eastern paramos of Guasca, toward Gachetá, 400 m., *Rusby & Pennell 1193* (Y). Honda, Tolima, 250 m., *Pennell 3611* (Y). Without locality, in 1898, *F. C. Nicholas* (Y). Widely distributed as a weed in tropical America.

A stout erect annual, nearly glabrous; leaves sessile or nearly so, linear-lanceolate; flowers in very large and dense, terminal and axillary clusters; calyx lobes 2, linear; corolla white, 2 mm. long.

Borreria sp. *Spermacoce humifusa* Willd. ex R. & S. Syst. Veg. 3: 530. 1818; HBK. Nov. Gen. & Sp. 3: 349. 1819.

Type from Bogotá, *Bonpland.*

Stems suffruticose, procumbent, glabrous; leaves short-petiolate, oblong-lanceolate, triplinerved, ciliolate-serrulate, glabrous; flower heads terminal and axillary, pedunculate, subtended by 4 leaves; calyx lobes 4, acute, ciliate; ovary glabrous.

This is doubtless a *Borreria*, and, judging from the description, it may well be the same as *B. bogotensis* (HBK.) Standl.

Borreria laevis (Lam.) Griseb. Goett. Abh. 7: 231. 1857. *Spermacoce laevis* Lam. Ill. 1: 273. 1791. *S. capitellata* Willd. ex R. & S. Syst. Veg. 3: 530. 1818. *B. capitellata* C. & S. Linnaea 3: 319. 1828. *B. Herbert-Smithii* Rusby, Descr. N. Sp. S. Amer. Pl. 144. 1920.

Cartagena, *Bro. Heriberto 145* (W), *69* (W). El Recuerdo, Santa Marta Mountains, *Niemeyer 22* (W). Turbaco, 200-300 m., *Killip & Smith 14180* (W, Y). La Cumbre, El Valle, 1,550-1,700 m., *Pennell 5014* (W, G, Y). California, Santander, 2,000 m., *Killip & Smith 17006* (W, Y). Río La Vieja, Caldas, *Pennell, Killip & Hazen 8592* (W). Turbaco, *Bro. Heriberto 418* (Y). Popayán, *Lehmann B.T.619* (G, Y). Medellín, *Toro 49* (Y). Bonda, Las Nubes, and Masinga, 45-1,350 m., *H. H. Smith 86* (F, W, G, M, Y). Mamatoca, 30 m., *H. H. Smith 87* (Y). Cuaco Mountains, 1,350 m., *H. H. Smith 321* (F, G, W, M, S; Y, type of *B. Herbert-Smithii*). Campo Alegre, 450 m., *H. H. Smith 1898* (Y). Don Amo, 750 m., *H. H. Smith 1898* (Y). Río Don Diego, *H. H. Smith 2652* (F, W, M, P, S, Y). Bonda, 45 m., *H. H. Smith 2547* (F, G, W, Y). Jordan, 180 m., *H. H. Smith 2795* (Y). Without locality, *Triana 1609* (K). Ocaña, 1,050 m., *Schlim 147* (K). Type of *S. capitellata* from Bogotá. Widely distributed as a weed in tropical America.

An annual; leaves oblong-lanceolate to ovate, acuminate, more or less pilose beneath, thin; flowers small, white, in dense, terminal

and axillary clusters; calyx lobes 4, triangular, minute; corolla 2-2.5 mm. long; fruit pubescent at the apex.

Borreria latifolia (Aubl.) Schum. in Mart. Fl. Bras. 6[6]: 61. 1888. *Spermacoce latifolia* Aubl. Pl. Guian. 55. *pl. 19, f. 1.* 1775.

La Teta, Cauca Valley, 1,000-1,500 m., *Lehmann 5444* (F). Villavicencio to Buenavista, 900-1,200 m., *Pennell 1665* (W, G, Y). Pipiral to Susumuco, Cundinamarca, 1,100-1,300 m., *Pennell 1706* (Y). Villavicencio, 450 mm., *Pennell 1461* (Y). Mesa de los Santos, Santander, 1,500 m., *Killip & Smith 15251* (W, Y). Santa Marta, *H. H. Smith 2629* in part (W). Widely distributed in tropical America.

An annual or perennial herb, yellowish green when dry, the stems narrowly winged above, glabrous or pubescent on the angles; leaves broadly elliptic, acute, thick, conspicuously nerved, scabrous above, puberulent beneath, at least along the nerves; inflorescence verticillate, the white flowers densely crowded in the axils.

When dried, the plant is easily recognized by the yellow-green color assumed by the leaves and stems.

Borreria melochioides Standl., sp. nov.—Herba ut videtur annua, erecta, simplex vel pauciramosa, 20-60 cm. alta, caulibus gracilibus dense pilis brevibus lutescentibus hirsutis, internodiis foliis longioribus; vagina stipularis brevissima pilosa, setis c. 7 ciliatis 3-7 mm. longis onusta; folia sessilia, lanceolata vel oblongo-lanceolata, 2-6 cm. longa, 0.6-1.5 cm. lata, longiacuminata, basi obtusa, in sicco luteo-viridia, supra dense breviterque aspero-pilosa, nervis impressis, subtus dense pilis gracilibus lutescentibus pilosa, nervis gracilibus elevatis, nervis lateralibus utroque latere 5, angulo acuto adscendentibus, margine plano vel revoluto; inflorescentiae axillares, capitatae, sessiles, spurie verticillatae, foliis involucralibus 2, quam caulina brevioribus, floribus sessilibus; ovarium obovoideum 2 mm. longum breviter pilosum; sepala 4, linearia, attenuato-acuminata, viridia, subaequalia, breviter pilosa, 3 mm. longa; corolla lilacina, 6-7 mm. longa, infundibuliformis, ad ⅓ in lacinias ovato-oblongas extus ad apicem sparse pilosas intus villosas divisa; antherae exsertae; stylus apice alte bifidus; capsula obovoidea, bisulcata, c. 2.5 mm. longa, breviter pilosa, sepalis coronata; semina oblonga 1.8 mm. longa fusco-brunnea punctulata.—Colombia: Melgar, Dept. Cundinamarca, alt. 500-600 m., December 4-5, 1917, *Francis W. Pennell 2922* (U. S. Nat. Herb. No. 1,042,537, type; duplicates in G and Y). Without locality, *Goudot* (K).

The plant is evidently related to *B. latifolia* (Aubl.) Schum. and *B. poaya* (St. Hil.) DC., the dried specimens having the same yellow-green coloration which characterizes those species. From *B. latifolia* the present species differs in its narrow leaves and verticillate inflorescence; *B. poaya* is a coarser, stouter plant, usually with less

copious pubescence and broader leaves, and with a usually glabrous ovary and longer sepals.

Borreria ocimoides (Burm.) DC. Prodr. 4: 544. 1830. *Spermacoce ocimoides* Burm. Fl. Ind. 34. *pl. 13, f. 1.* 1768. *B. parviflora* Mey. Prim. Fl. Esseq. 83. *pl. 1.* 1818.

Quebrada de los Angeles, above Natagaima, 450-600 m., *Rusby & Pennell 317* (W, Y). Turbaco, *Bro. Heriberto 418* (W). Líbano, 1,100-1,400 m., *Pennell 3289* (W, Y). Cañabetal, Río Magdalena, 100 m., *Pennell 3878* (W, G, M, Y). La Cumbre, El Valle, 1,550-1,700 m., *Pennell 5024* (W, G, Y). Río Sucio to Río Piedras, west of Popayán, 1,500-1,700 m., *Pennell & Killip 8208* (W, Y). Río Piedras, west of Popayán, 1,600-1,700 m., *Pennell & Killip 7208* (W, Y). Villavicencio to Buenavista, 900-1,200 m., *Pennell 1673* (Y). Angelopolis, *Toro 271* (Y). Popayán(?), *André K.1132* (Y). Río Paez, Tolima, 1,000-1,400 m., *Lehmann 4471* (F). Bonda, 30 m., *H. H. Smith 88* (Y), *1798* (Y). Escalera de los Indios, 300 m., *H. H. Smith 90* (W, G, M, Y). Onaca Estate, *H. H. Smith 2629* (F, W, M, P, S, Y). Mirica Road, 450-600 m., *H. H. Smith 2794* (Y). Río Don Diego, *H. H. Smith 2651* (Y), *2650* (F, W, M, P, Y). Las Nubes, 1,350 m., *H. H. Smith 1787* (F, W, G, M, P, Y). Masinga, 60 m., *H. H. Smith 1791* (Y). Las Partidas, 1,050 m., *H. H. Smith 1786* (Y). Jiracasaca, 750 m., *H. H. Smith 1788* (F, G, Y). Buritaca, *H. H. Smith 1789* (Y). Near Lake Sapatoza, Magdalena Valley, *Allen 340* (K). A weed in waste places. Widely distributed in tropical America, and in Africa and Asia.

A slender branched annual, the stems glabrous or puberulent on the angles; leaves oval to oblong-lanceolate, 1-3 cm. long, glabrous; flowers minute, white, in dense axillary clusters; sepals 4; stamens included; fruit glabrous or puberulent.

Borreria suaveolens Mey. Prim. Fl. Esseq. 81. *pl. 1.* 1818. *Spermacoce tenella* HBK. Nov. Gen. & Sp. 3: 345. 1819. *B. tenella* C. & S. Linnaea 3: 317. 1828.

Masinga, 240 m., *H. H. Smith 83* (F, G, M, P, W, Y). San Lorenzo Ridge, 2,190 m., *H. H. Smith 1795* (F, G, W). Fusagasugá(?), *André K.1126* (Y). La Esmeralda, Cauca, 1,200 m., *Pittier 944* (W). Tacueyó, Cauca, 1,800 m., *Pittier 1021* (W). Popayán, 1,500-2,000 m., *Lehmann 7595* (F). Without locality, *Lehmann B.T.531* (F, G, Y). Buenos Aires, Cauca, 1,000-1,500 m., *Lehmann B.T.617* (G, Y). Popayán, 1,500-2,500 m., *Lehmann 8538* (Y). East of Neiva, 700-1,200 m., *Rusby & Pennell 430* (Y), *1084* (Y). El Convenio, Tolima, 1,000-1,200 m., *Pennell 3467* (W, G, Y). Medellín, *Toro 453* (Y). Honda, 300 m., *Pennell 3581* (Y). Pavas, El Valle, 1,500-1,800 m., *Pennell 5531* (W, Y). Cuatro Esquinas, Cauca, 1,700 m., *Pennell & Killip 6367* (W). El Ramal to Río Sucio, Cauca, 1,600-1,900 m., *Pennell & Killip 8108* (W, G, Y). Near Palmira, Cauca, 1,000 m., *Pittier 1536* (W). Popayán, *André K. 1131* (K); at 1,000-2,000 m., *Lehmann* (K). Without locality,

Linden 1493 (K). La Paila, *Holton 418* (Y). On grassy or rocky slopes and in thickets. Widely distributed in tropical America.

A perennial, sometimes suffrutescent, usually erect, glabrous or nearly so; leaves linear or lanceolate, rarely broader; flowers in dense, globose, chiefly terminal heads; calyx lobes 4, triangular-oblong; corolla white, 2.5-5 mm. long; anthers exserted.

The plant is a variable one. Pittier reports that in the Cauca Valley it is called "sanaltodo," and is employed to "purify the blood."

Borreria verticillata (L.) Mey. Prim. Fl. Esseq. 83. 1818. *Spermacoce verticillata* L. Sp. Pl. 102. 1753. *B. podocephala* DC. Prodr. 4: 542. 1830.

Buritaca, 600 m. or less, *H. H. Smith 1785* (F, G, W, P, Y). Susumico, Cundinamarca, 1,200-1,400 m., *Pennell 1730* (W, G, Y). Mesa de los Santos, Santander, 1,500 m., *Killip & Smith 15165* (W, Y). Widely distributed in tropical America.

An herbaceous or suffrutescent perennial, usually erect, glabrous or nearly so; leaves linear or linear-lanceolate, subsessile; flowers in dense, terminal and axillary heads; calyx lobes 2, linear; corolla white, 2 mm. long.

79. RELBUNIUM Hook. f.

Relbunium ciliatum (R. & P.) Hemsl. Biol. Centr. Amer. Bot. 2: 62. 1881. *Galium ciliatum* R. & P. Fl. Peruv. 1: 59. 1798.

Southwest of Las Cruces, Bogotá, 2,700 m., *Pennell 2185* (F, M, W, Y). Zipacón, Cundinamarca, 2,500 m., *Rusby & Pennell 1212* (F, M, W, Y). California, Santander, 2,800 m., *Killip & Smith 16956* (W, Y). Páramo de Vetas, Santander, 3,400-3,700 m., *Killip & Smith 17414* (W, Y). Coconuco to Popayán, Cauca, 2,000-2,500 m., *Killip 6886* in part (W, Y). Páramo de Santurbán, Norte de Santander, 4,200-4,500 m., *Killip & Smith 19563* (W). On open or shaded banks or hillsides. Ranging southward to Peru.

Stems glabrous; leaves oblong or linear-lanceolate, acute, mucronate, glabrous but usually ciliate; flowers white or pale greenish yellow; fruit glabrous.

The leaves of this species usually are ciliate, but frequently they are quite without cilia.

Relbunium hirsutum (R. & P.) Schum. in Mart. Fl. Bras. 6^6: 116. 1888. *Galium hirsutum* R. & P. Fl. Peruv. 1: 59. 1798.

Tuquerres, 3,000 m., *Lehmann 4687* (F); *André 3200* (F, Y). Las Vegas, Santander, 2,600-3,000 m., *Killip & Smith 16114* (W, Y). Guadalupe, 3,000 m., *Apollinaire & Arthur 102* (W). Paletará, Cauca, 3,000 m., *Pennell 7069* (W). Páramo de las Coloradas, Santander, 3,900-4,100 m., *Killip & Smith 18399* (W), *18447* (W). Canaan, Mount Puracé, Cauca, 2,900-3,200 m., *Killip 6753* (W).

La Baja, Santander, 2,700-3,500 m., *Killip & Smith 18033* (W, Y). Coconuco to Popayán, 3,000-2,500 m., *Killip 6886* in part (Y). Above Bogotá, 2,700 m., *Rusby & Pennell 1263* (M, Y). On brushy slopes or open banks. Ranging southward to Peru.

Stems short-hirsute; leaves lanceolate to oblong-ovate, acute, short-hirsute; flowers greenish white or greenish yellow; fruit glabrous.

Relbunium hypocarpium (L.) Hemsl. Biol. Centr. Amer. Bot. 2: 63. 1881. *Vaillantia hypocarpia* L. Syst. Nat. ed. 10, 1307. 1759. *Rubia incana* HBK. Nov. Gen. & Sp. 3: 338. 1819. *Rubia hispida* Willd. ex Spreng. Syst. Veg. 1: 397. 1825, as syn. *Galium albicans* Wedd. Chlor. And. 2: 38. 1857. *Relbunium hypocarpium* var. *incanum* Schum. in Mart. Fl. Bras. 6^6: 113. 1888.

Onaca Estate, Santa Marta, 750 m., *H. H. Smith 2626* (F, M, P, Y). Sierra del Líbano, 2,250 mm., *H. H. Smith 1343* in part (M, Y). Honda, *André 3192* (F, Y). Chipaque(?), *André 3192* (F, G, Y). Quetame, 1,800 m., *André 984* (F, G, Y). La Trinidad, Líbano, Tolima, 1,100-1,400 m., *Pennell 3238* (F, G, M, Y). Guayabetal, Cundinamarca, 1,300-1,500 m., *Pennell 1763* (Y), *1762* (Y). East of Neiva, Huila, 1,800-2,300 m., *Rusby & Pennell 857* (G, Y), *538* (Y). Páramo de Ruiz, Tolima, 3,400-3,600 m., *Pennell 3079* (G, M, Y). Salento, Caldas, 2,100-2,500 m., *Pennell 8863* (G, Y). La Palmita, Caldas, 1,100-1,300 m., *Pennell, Killip & Hazen 8624* (G, Y). Páramo del Quindío, Caldas, 3,700-4,200 m., *Pennell & Hazen 10004* (G, Y). San José, Cauca, *Pennell & Killip 7417* (G, Y). Canaan, Cauca, 3,300 m., *Pennell & Killip 6522* (G, Y). Potrerillo de Miraflores, El Valle, 1,200-1,800 m., *Pennell & Killip 6089* (Y). La Cumbre, El Valle, 1,700 m., *Pennell 5123* (G, Y). Bogotá, *Holton 415* (G, P). Páramo Rico, Santander, *Killip & Smith 17664* (W, Y). Between Piedecuesta and Santos, Santander, 1,000-1,500 m., *Killip & Smith 15396* (W). Páramo de Mogotocoro, Santander, 3,700 m., *Killip & Smith 17614* (W, Y). On open hillsides, in thickets or clearings, and in forest. Widely distributed in tropical America.

A slender much-branched herb, often subscandent; stems pilose or retrorse-pilose, sometimes glabrate; leaves elliptic to ovate or oval, rounded to acute at the apex, thick, usually pilose or hispidulous on both surfaces; flowers greenish yellow; fruit orange-red, pilose.

Relbunium nitidum (HBK.) Schum. in Mart. Fl. Bras. 6^6: 114. 1888. *Rubia nitida* HBK. Nov. Gen. & Sp. 3: 339. *pl. 280.* 1819.

Santa Marta, 2,250 m., *H. H. Smith 1343* in part (F, G, P, Y). Mount El Derrumbo, Cauca, 2,500-2,900 m., *Killip 7991* (G, W, Y). Charta, Santander, 2,000-2,600 m., *Killip & Smith 19126* (W, Y). Without locality, *Ariste-Joseph A285* (W), *A899* (W). Mountains near Bogotá, *Holton 414* (P, Y). La Baja, Santander, 2,700-3,500 m., *Killip & Smith 18051* (W, Y). East of Neiva, Huila, 2,200-

2,500 m., *Rusby & Pennell 894* (G, M, Y). Balsillas, Huila, 2,000 m., *Rusby & Pennell 931* (Y). Río San Rafael, below Cerro Tatama, Caldas, 2,500-2,700 m., *Pennell 10417* (G, Y). In forest or thickets or on rocky banks. Also in Ecuador.

A slender much-branched herb, procumbent or often subscandent, the stems reflexed-pilose or glabrate; leaves elliptic or obovate, acute or obtuse, usually coriaceous, glabrous above, ciliate, beneath usually hispidulous; corolla described as purplish brown to white; fruit fleshy, glabrous, orange or red.

It is doubtful whether this is more than a variety or form of *R. hypocarpium*.

80. GALIUM L.

Galium canescens HBK. Nov. Gen. & Sp. 3: 336. 1819.

Rosalito to Murillo, Tolima, 2,700-3,000 m., *Pennell 3133* (F, G, M, W, Y). Between Pasto and Tiquerres, *André 3192* (F, Y). Between Mutiscua and Pamplona, Norte de Santander, 2,700 m., *Killip & Smith 19764* (W, Y). La Baja, Santander, 3,100 m., *Killip & Smith 18148* (W, Y). Mountains near Bogotá, *Holton 415* (Y). Páramo del Quindío, Caldas, 3,800-4,000 m., *Pennell & Hazen 10051* (G, W, Y). Caqueza, Cundinamarca, 1,500-1,600 m., *Pennell 1838* (G, W, Y). Tequendama, *Holton 412* (G). Also in Ecuador and Peru.

Stems pilose above; leaves in 4's, ovate, short-acuminate, 3-nerved, pilose; flowers axillary and solitary, or in 3's at the ends of the branches; fruit dry, uncinate-hispid.

Galium obovatum HBK. Nov. Gen. & Sp. 3: 336. *pl.* 277. 1819.

Tequendama, *Holton 412* (P, Y). Pica-Pica Valley, above Tapatá, Norte de Santander, 2,100-2,400 m., *Killip & Smith 20201* (W, Y). Páramo de Romeral, Santander, 3,800-4,100 m., *Killip & Smith 18549* (W, Y), *18556* (W, Y). Las Vegas, Santander, 2,600-3,000 m., *Killip & Smith 16094* (W, Y).

Stems reflexed-pilose or glabrate; leaves in 4's, obovate, rounded and apiculate at the apex, sparsely pilose or glabrate, 3-nerved; flowers usually in 3's, pedicellate; fruit dry, uncinate-hispid.

Galium piliferum HBK. Nov. Gen. & Sp. 3: 337. 1819.

Type collected in the Andes of Quindío, near Los Gallegos and Quebrada de Tochecito, *Bonpland*. Moist rocky canyon, Río San Francisco, above Bogotá, 2,800 m., *Pennell 1930* (F, G, M, W, Y), *1927* (F, G, M, W, Y). Páramo de Ruiz, Tolima, 3,100 m., *Pennell 3103* (Y). In forest, Rosalito, Tolima, 2,900-3,200 m., *Pennell 3112* (Y). Vetas, Santander, 3,100 m., *Killip & Smith 17382* (W). Open hillside, Tona, Santander, 1,900-2,100 m., *Killip & Smith 19509* (W, Y).

Stems uncinulate; leaves in 6's or 8's, linear-oblanceolate, setulose-acuminate, uncinate on the margins and costa, 1-nerved;

flowers terminal, the corolla white, yellowish green, or purplish; fruit dry, uncinate-hispid.

Galium Trianae Wernh. Journ. Bot. 50: 244. 1912.

Type from Colombia, *Triana*. Without locality, *Triana 1598* (W, Y), *1601* (Y); *Ariste-Joseph B42* (W). Bogotá, *Ariste-Joseph A268* (W). Wet meadow, San Cristóbal, Cundinamarca, 2,800 m., *Pennell 2310* (F, G, M, W, Y). Verjón, *Ariste-Joseph A159* (W). Tequendama, *Ariste-Joseph A149* (W). Southwest of Las Cruces, Cundinamarca, 2,600 m., *Pennell 2161* (Y).

Stems uncinulate, glabrate; leaves in 6's, oblong, 1-nerved, acute or obtuse, glabrate; corolla white; fruit dry, uncinate-hispid.

Judging from the description of *Rubia scabra* HBK. (Nov. Gen. & Sp. 3: 340. 1819, non Salisb.; *Galium scabrum* Wedd. Chlor. And. 2: 39. 1857, non L., 1753), it is probable that it is identical with *G. Trianae*.

KEY TO THE TRIBES AND GENERA OF COLOMBIAN RUBIACEAE[1]

Ovules 3 or more in each cell of the ovary.

Fruit dry.

Flowers arranged in very dense, globose heads : : : : . . *Naucleeae.*

Flowers not in dense globose heads.

Corolla bilabiate, the lobes imbricate. Stamens unequal. *Henriquezieae.*

Corolla regular.

Seeds winged, vertically imbricate . . . . . *Cinchoneae.*

Seeds not winged, or, if winged, horizontal.

Corolla lobes imbricate or contorted, never valvate. *Rondeletieae.*

Corolla lobes valvate.

Seeds horizontal; stipules entire or bifid; plants trees or large shrubs . . . . . *Condamineae.*

Seeds peltately attached; stipules often fimbriate; plants usually herbs or very low shrubs. *Hedyotideae.*

Fruit fleshy.

Corolla lobes valvate . . . . . *Mussaendeae.*

Corolla lobes imbricate or contorted.

Seeds many, minute, pitted or rarely tuberculate. *Hamelieae.*

Seeds usually few and large, the testa smooth or fibrous. *Gardenieae.*

Ovules 1 or 2 in each cell of the ovary.

Ovules 2 in each cell of the ovary . . . . . *Retiniphylleae.*

Ovule 1 in each cell.

Ovules pendulous.

Stamens inserted in the throat of the corolla tube. *Guettardeae.*

Stamens inserted at the base of the corolla tube. *Chiococceae.*

Ovules erect or ascending.

Corolla lobes contorted . . . . . *Ixoreae.*

[1]The key is adapted from that published by Wernham for the tropical American genera. See Journ. Bot. 54: 326. 1916.

Corolla lobes valvate.

Ovules affixed to the base of the ovary.

Ovary 1-celled, or 2-celled but with a very thin septum. *Coussareae.*

Ovary with 2 or more cells, the septum thick.

Flowers perfect; stamens usually inserted in the throat of the corolla; plants usually trees or shrubs.....*Psychotrieae.*

Flowers usually dioecious; stamens usually inserted at the base of the corolla; plants mostly herbaceous.....*Anthospermeae.*

Ovules affixed to the septum.

Stipules entire, not leaflike; plants trees or shrubs. *Morindeae.*

Stipules fimbriate, or leaflike; plants mostly herbaceous.

Stipules fimbriate, not leaflike.....*Spermacoceae.*

Stipules resembling the leaves and forming whorls with them.....*Galieae.*

NAUCLEEAE

A single genus in Colombia.....1. *Uncaria.*

CINCHONEAE

Corolla lobes valvate.

Placenta pendulous from the apex of the cell. Flowers in spike-like inflorescences.....2. *Alseis.*

Placenta not pendulous.

Placenta ascending or erect from the base of the septum; plants usually scandent.....3. *Manettia.*

Placenta adnate to the middle of the septum; plants not scandent.

Capsule splitting from below upward.....4. *Cinchona.*

Capsule splitting from above downward.

Fruit dehiscing into 4 spirally coiled valves; corolla lobes bifid.....5. *Joosia.*

Fruit not dehiscing into 4 spirally coiled valves; corolla lobes entire or nearly so.

Capsule loculicidal.....6. *Macrocnemum.*

Capsule septicidal.

Valves of the capsule bifid.....7. *Remijia.*

Valves entire.....8. *Ladenbergia.*

Corolla lobes imbricate or contorted.

Corolla lobes contorted (one external in *Calycophyllum*).

Calyx lobes unequal, one of them expanded into a large colored limb.

Flowers zygomorphic.....9. *Capirona.*

Flowers regular.

Calyx becoming deeply 2-lipped.....10. *Schizocalyx.*

Calyx truncate.....11. *Calycophyllum.*

Calyx lobes equal or nearly so, none of them expanded into a large limb.

Stamens unequal.....12. *Ferdinandusa.*

Stamens equal.

Calyx caducous; seeds bearded.....13. *Hillia.*

Calyx persistent; seeds not bearded.....14. *Cosmibuena.*

Corolla lobes imbricate.....15. *Coutarea.*

HENRIQUEZIEAE

A single genus in Colombia.....16. *Henriquezia.*

CONDAMINEAE

Calyx lobes unequal, one of them expanded into a large colored limb.....17. *Pogonopus.*

Calyx lobes equal or nearly so.

Calyx deciduous; anthers dehiscing longitudinally. 18. *Condaminea.*

Calyx persistent; anthers dehiscing by pores.....19. *Rustia.*

RONDELETIEAE

Corolla lobes imbricate.

Calyx lobes unequal, one of them sometimes expanded into a large colored lobe.....20. *Warscewiczia.*

Calyx lobes equal or nearly so.

Seeds usually large, winged on one side.....21. *Sickingia.*

Seeds small, not winged.....22. *Rondeletia.*

Corolla lobes contorted.

Plants small herbs.....23. *Sipanea.*
Plants shrubs or trees.....24. *Elaeagia.*

HEDYOTIDEAE

Seeds angled or winged; plants herbaceous.....25. *Oldenlandia.*
Seeds boat-shaped or plano-convex; plants usually shrubby. 26. *Arcytophyllum.*

MUSSAENDEAE

Inflorescence terminal.
Flowers in a dense head subtended by bracts.
Leaves appearing alternate, one of each pair much reduced and resembling a stipule.....27. *Didymochlamys.*
Leaves opposite.....28. *Schradera.*
Flowers not in a dense head.
Inflorescence elongate, spikelike.....29. *Gonzalagunia.*
Inflorescence not spikelike.
Calyx lobes unequal, one of them expanded into a large limb.....30. *Carmenocania.*
Calyx lobes equal or nearly so.
Ovary 2-celled.....31. *Cassupa.*
Ovary 4-6-celled.....32. *Isertia.*
Inflorescence axillary.
Plants creeping, herbaceous; flowers in heads, these pedunculate or sessile.....33. *Coccocypselum.*
Plants not creeping, usually shrubs or trees.
Leaves with many close parallel striolae in the meshes between the ultimate veins.
Inflorescence 1-3-flowered.....34. *Hippotis.*
Inflorescence many-flowered.
Calyx spathaceous or lobed, the lobes not foliaceous; leaves sometimes pinnatifid.....35. *Pentagonia.*
Calyx deeply lobed, the lobes foliaceous; leaves entire. 36. *Sommera.*
Leaves not striolate between the veins.....37. *Sabicea.*

HAMELIEAE

Ovary 4-5-celled.
Corolla lobes contorted in bud.....38. *Bertiera.*
Corolla lobes imbricate in bud.....39. *Hamelia.*
Ovary 2-celled.

Anthers exserted; inflorescence axillary.....40. *Hoffmannia.*
Anthers included; inflorescence terminal.....41. *Raritebe.*

GARDENIEAE

Flowers perfect.
Inflorescences terminal or terminal and axillary.
Corolla not regular, the buds curved.....42. *Posoqueria.*
Corolla regular, the buds not curved.
Flowers arranged in many-flowered lax cymes..43. *Tocoyena.*
Flowers solitary or 3-4 in a head.
Corolla tube at most barely exceeding the limb, usually shorter.....44. *Sphinctanthus.*
Corolla tube elongate.....45. *Randia.*
Inflorescences lateral.
Corolla tube villous in both throat and base; testa of the seeds fibrous.....46. *Genipa.*
Corolla tube villous in either throat or base, but not in both; testa not fibrous.....45. *Randia.*
Flowers dioecious.
Stipules forming a conical cap, deciduous above a circular slit.
Staminate flowers in cymes, the pistillate usually solitary, rarely 2-3 in a head.....47. *Duroia.*
Staminate and pistillate flowers both in cymes...48. *Amaioua.*
Stipules free, or connate at the base, not forming a cap dehiscent by a transverse slit.
Staminate inflorescences lateral; plants often armed with spines.....45. *Randia.*
Staminate flowers terminal; plants unarmed.....49. *Alibertia.*

RETINIPHYLLEAE

A single genus in Colombia.....50. *Retiniphyllum.*

GUETTARDEAE

Corolla lobes imbricate in bud.
Fruit dry, separating into 2 small cocci.....51. *Machaonia.*
Fruit drupaceous, indehiscent.
Calyx limb deciduous; anthers included.....52. *Guettarda.*
Calyx limb persistent; anthers long-exserted....55. *Pittoniotis.*
Corolla lobes valvate in bud.

Corolla tube slender, much elongate; plants usually armed with spines.....53. *Chomelia.*

Corolla tube short; plants unarmed.....54. *Malanea.*

CHIOCOCCEAE

A single genus in Colombia.....56. *Chiococca.*

IXOREAE

Calyx calyculate at the base.....57. *Coffea.*

Calyx simple.....58. *Ixora.*

MORINDEAE

A single genus in Colombia.....59. *Morinda.*

COUSSAREAE

Ovules connate, borne on a common basal column...60. *Coussarea.*

Ovules separate in a 1-celled ovary, collateral, basilar. 61. *Faramea.*

PSYCHOTRIEAE

Inflorescence an involucrate head.

Seeds flat on the inner side; plants creeping herbs...62. *Geophila.*

Seeds deeply furrowed on the inner side; usually trees or shrubs. 63. *Cephaelis.*

Inflorescence without an involucre, the flowers usually not in heads.

Fruiting carpels much compressed laterally. Plants herbaceous. 64. *Declieuxia.*

Fruiting carpels not compressed.

Stipules not pectinate, or very rarely so; seeds deeply furrowed or flat on the inner side.

Corolla tube not gibbous at the base; inflorescence usually not thyrsoid.....65. *Psychotria.*

Corolla tube gibbous at the base; inflorescence usually thyrsoid.....66. *Palicourea.*

Stipules pectinate; seed with inrolled ventral surface. 67. *Rudgea.*

ANTHOSPERMEAE

Fruit pyriform, leathery, splitting into 2 cocci.....68. *Corynula.*

Fruit a succulent berry-like drupe.....69. *Nertera.*

SPERMACOCEAE

Fruit a 2-celled drupe, indehiscent and not separating into cocci. 70. *Ernodea.*

Fruit dehiscent, or separating into cocci.

Fruit circumscissile.

Ovary 2-celled....71. *Mitracarpus.*

Ovary 3-4-celled....72. *Perama.*

Fruit not circumscissile, separating into cocci.

Cocci indehiscent.

Cocci more than 2....73. *Richardia.*

Cocci 2....74. *Diodia.*

Cocci dehiscent at the base or apex.

Cocci opening only at the base....75. *Hemidiodia.*

Cocci opening at the apex.

Seeds winged; plants scandent; flowers in umbels. 76. *Emmeorrhiza.*

Seeds not winged; plants not scandent; flowers not in umbels.

Cells of the fruit unlike, one opening, the other remaining closed....77. *Spermacoce.*

Cells of the fruit alike, both opening....78. *Borreria.*

GALIEAE

Flowers surrounded by a calyx-like involucre....79. *Relbunium.*

Flowers not involucrate....80. *Galium.*

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